ORDER NO. SD7804-1333

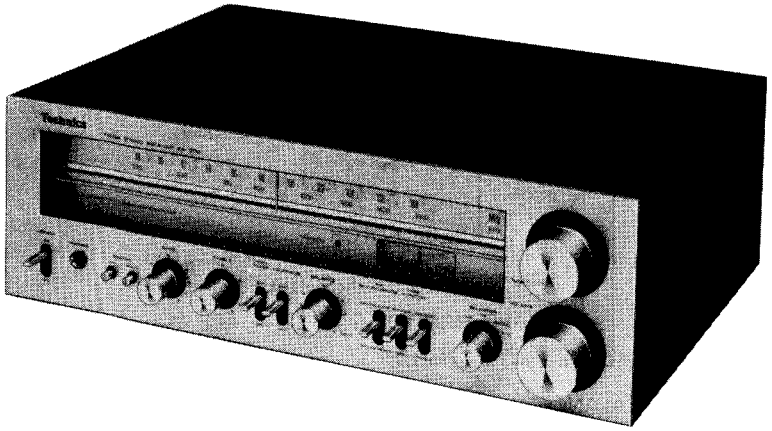
Service Manual

SA-300

FM/AM STEREO RECEIVER

SA-300

(X), (XA), (XAL)
(XGH), (E)



* The models SA-300(X) and SA-300(XA) are available in Asia, Latin America, Middle East and Africa only.
* The model SA-300(XAL) is available in Australia only.
* The model SA-300(XGH) is available in Holland only.
* The model SA-300(E) is available in Scandinavia and European only.

TECHNICAL SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

[DIN 45 500]

AMPLIFIER SECTION

1 kHz continuous power output	
both channels driven	2 x 40 W (4Ω), 2 x 38 W (8Ω)
40 Hz ~ 16 kHz continuous power output	
both channels driven	2 x 37 W (4Ω), 2 x 35 W (8Ω)
20 Hz ~ 20 kHz continuous power output	
both channels driven	2 x 35 W (8Ω)
Power bandwidth	
both channels driven, −3 dB	10 Hz ~ 25 kHz (4Ω)
Total harmonic distortion	
rated power at 1 kHz	0.04% (4Ω, 8Ω)
rated power at 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
rated power at 20 Hz ~ 20 kHz	0.04% (8Ω)
half power at 20 Hz ~ 20 kHz	0.025% (8Ω)
half power at 1 kHz	0.009% (8Ω)
−26 dB power at 1 kHz	0.04% (4Ω)
50 mW power at 1 kHz	0.2% (4Ω)
Intermodulation distortion	
rated power at 250 Hz: 8 kHz = 4:1, 4Ω	0.04%
rated power at 60 Hz: 7 kHz = 4.1, SMPTE, 8Ω	0.04%
Residual hum & noise	0.6mV
Damping factor	16 (4Ω), 32 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY input	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150mV/33 kΩ
PHONO maximum input voltage (1 kHz, RMS)	130 mV
S/N	
rated power at 4Ω — PHONO	70 dB (IHF, A: 78 dB)
rated power at 4Ω — AUX	88 dB (IHF, A: 95 dB)
−26 dB power at 4Ω — PHONO	68 dB, AUX 77 dB
50 mW power at 4Ω — PHONO	64 dB, AUX 65 dB
Frequency response PHONO	RIAA standard curve ±0.5 dB
AUX	20 Hz ~ 20 kHz, ± 0.5 dB
	10 Hz ~ 30 kHz, −1 dB
Tone controls BASS	50 Hz, +10 dB ~ −10 dB
TREBLE	10 kHz, +10 dB ~ −10 dB
HIGH filter	7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB)	50 Hz, +9 dB
Output voltage REC OUT (TAPE 1, 2)	150 mV
REC/PLAY output	30 mV
Channel balance (250 Hz ~ 6300 Hz), AUX	±1.0 dB
Channel separation at 1 kHz, AUX	55 dB
Headphones output level and impedance	400 mV/330Ω
Load impedance MAIN or REMOTE	4 ~ 16Ω
MAIN + REMOTE	8 ~ 16Ω

FM TUNER SECTION

Frequency range	88 ~ 108 MHz
Antenna impedance	300Ω (balanced), 75Ω (unbalanced)
Sensitivity (±40 kHz deviation)	
S/N 30 dB	1.9μV (300Ω), 1.3μV (75Ω)
S/N 26 dB	1.7μV (300Ω), 1.2μV (75Ω)
S/N 20 dB	1.5μV (300Ω), 0.9μV (75Ω)
IHF usable sensitivity	1.9μV (IHF '58)
IHF S/N 46 dB stereo quieting sensitivity	22μV (75Ω)
Total harmonic distortion MONO	0.15%
STEREO	0.3%
S/N (±40kHz deviation) MONO	60 dB (IHF: 75 dB)
STEREO	58 dB (IHF: 70 dB)
Frequency response	20Hz ~ 15 kHz, $^{+1}_{-2}$ dB
	20 Hz ~ 14 kHz, ±1.5 dB
Alternate channel selectivity	70 dB
Capture ratio	1.2 dB
Image rejection at 98 MHz	70 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation 1 kHz	45 dB, **10 kHz** 35 dB
Leak carrier 19 kHz	−33 dB (−40 dB, IHF)
38 kHz	−48 dB (−50 dB, IHF)
Limiting point	1.2μV
Bandwidth IF amplifier	180 kHz
FM demodulator	1000 kHz
Channel balance (250 Hz ~ 6300 Hz)	±1.5 dB

AM TUNER SECTION

Frequency range	525 ~ 1605 kHz
Sensitivity (S/N 20 dB)	30μV, 300μV/m
Selectivity	30 dB
Image rejection at 1000 kHz	45 dB
IF rejection at 1000 kHz	40 dB

GENERAL

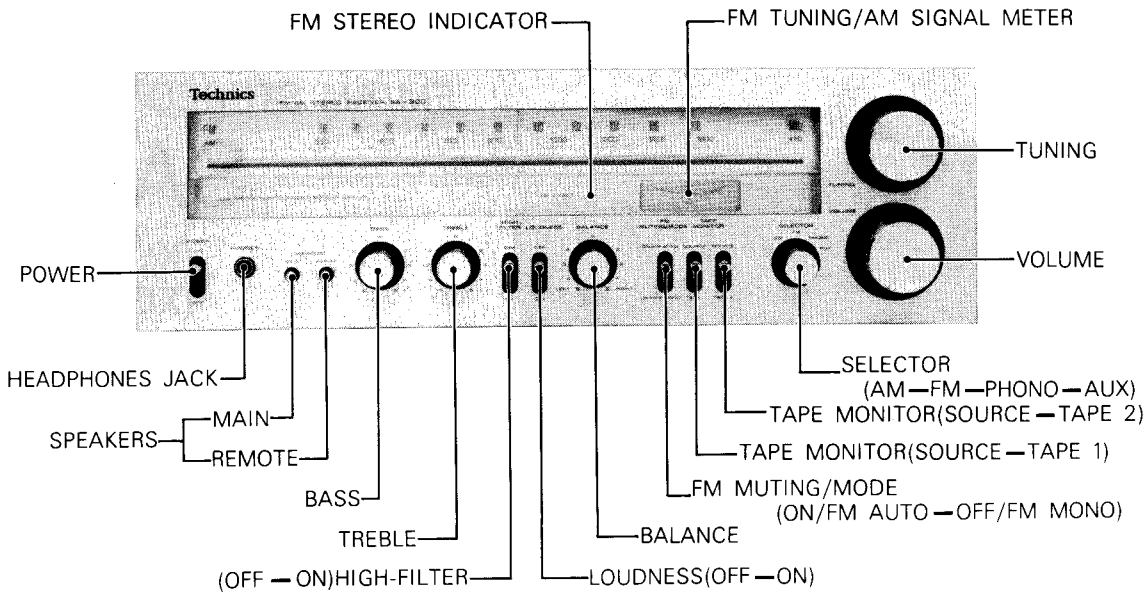
Power consumption	410 W
Power supply (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (W x H x D)	430 x 145 x 260 mm
	(16 9/16" x 5 23/32" x 10 1/4")
Weight	7.7 kg (17 lb.)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

SA-300

■ LOCATION OF CONTROLS (Front Panel)



TECHNISCHE DATEN [DIN 45 500]

Spezifikationen können infolge von Verbesserungen ohne Ankündigung geändert werden.

VERSTÄRKERTEIL

RMS-Dauertonleistung bei 1 kHz	
beide Kanäle zusammen ausgesteuert	2 x 40 W (4Ω) 2 x 38 W (8Ω)
RMS-Dauertonleistung bei 40 Hz ~ 16 kHz	
beide Kanäle zusammen ausgesteuert	2 x 37 W (4Ω) 2 x 35 W (8Ω)
RMS-Dauertonleistung bei 20 Hz ~ 20 kHz	
beide Kanäle zusammen ausgesteuert	2 x 35 W (8Ω)
Leistungsbandbreite	
beide Kanäle zusammen ausgesteuert, −3 dB	10 Hz ~ 25 kHz (4Ω)
Harmonische Verzerrungen	
Nennausgangsleistung bei 1 kHz	0.04% (4Ω, 8Ω)
Nennausgangsleistung bei 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
Nennausgangsleistung bei 20 Hz ~ 20 kHz	0.04% (8Ω)
Halber Ausgangsleistung bei 20 Hz ~ 20 kHz	0.025% (8Ω)
Halber Ausgangsleistung bei 1 kHz	0.009% (8Ω)
−26 dB Ausgangsleistung bei 1 kHz	0.04% (4Ω)
50 mW Ausgangsleistung bei 1 kHz	0.2% (4Ω)
Intermodulationsverzerrung	
Nennausgangsleistung bei 250 Hz: 8 kHz = 4:1, 4Ω	0.04%
Nennausgangsleistung bei 60 Hz: 7 kHz = 4:1, 8Ω	0.04%
Hum & Noise	0.6 mV
Dämpfungsfaktor	16 (4Ω), 32 (8Ω)
Eingangsempfindlichkeit & Impedanz	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY Eingang	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150 mV/33 kΩ
PHONO Maximale Eingangsspannungen (1 kHz RMS)	130 mV
Fremdspannungsabstand	
Nennausgangsleistung bei 4Ω PHONO	70 dB (IHF, A: 78 dB)
AUX	88 dB (IHF, A: 95 dB)
−26 dB Ausgangsleistung bei 4Ω PHONO	68 dB
AUX	77 dB
50 mW Ausgangsleistung bei 4Ω PHONO	64 dB
AUX	65 dB
Frequenzgang PHONO	RIAA Standardkurve ±0.5 dB
AUX	20 Hz ~ 20 kHz, ±0.5 dB 10 Hz ~ 30 kHz, −1 dB
Klangregler BÄSSE	50 Hz, +10 dB ~ −10 dB
HÖHEN	10 kHz, +10 dB ~ −10 dB
Höhenfilter	7 kHz, −6 dB/oct.
Gehörgerechte Lautstärkekorrektur (Lautstärke bei −30 dB)	50 Hz, +9 dB
Ausgangsspannungen REC OUT (TAPE 1, 2)	150 mV
REC/PLAY Aufnahme	30 mV
Kanalabweichung (250Hz ~ 6300Hz), AUX	±1.0 dB
Kanaltrennung bei 1 kHz, AUX	55 dB
Kopfhörerpegel und Ausgangsimpedanz	400 mV/330Ω
Endimpedanz MAIN oder REMOTE	4 ~ 16Ω
MAIN und REMOTE	8 ~ 16Ω

UKW-TUNERTEIL

Empfangsbereich	88 ~ 108 MHz
Antennenanschluss	300Ω (symmetrisch), 75Ω (asymmetrisch)
Empfindlichkeit (±40 kHz Hub)	
30 dB Fremdspannungsabstand	1,9μV (300Ω), 1,3μV (75Ω)
26 dB Fremdspannungsabstand	1,7μV (300Ω), 1,2μV (75Ω)
20 dB Fremdspannungsabstand	1,5μV (300Ω), 0,9μV (75Ω)
IHF Empfindlichkeit	1,9μV (IHF '58)
46 dB Fremdspannungsabstand Empfindlichkeit, IHF	22μV (75Ω), STEREO
Harmonische Verzerrung MONO	0,15%
STEREO	0,3%
Fremdspannungsabstand (±40 kHz Hub) MONO	60 dB (IHF: 75 dB)
STEREO	58 dB (IHF: 70 dB)
Frequenzgang	20 Hz ~ 15 KHz, $^{+1}_{-2}$ dB
	20 Hz ~ 14 kHz, ±1,5 dB
Selektivität	70 dB
Gleichwellen-Selektion	1,2 dB
Spiegelselektion bei 98 MHz	70 dB
ZF-Festigkeit bei 98 MHz	90 dB
Unselektivitätsfestigkeit bei 98 MHz	80 dB
AM-Unterdrückung	55 dB
Stereo Übersprechdämpfung 1 kHz	45 dB, **10 kHz** 35 dB
Trägerrest 19 kHz	−33 dB (−40 dB, IHF)
38 kHz	−48 dB (−50 dB, IHF)
Begrenzung, Einsatzpunkt	1,2μV
Bandbreite ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Kanalabweichung (250 Hz ~ 6300 Hz)	±1.5 dB

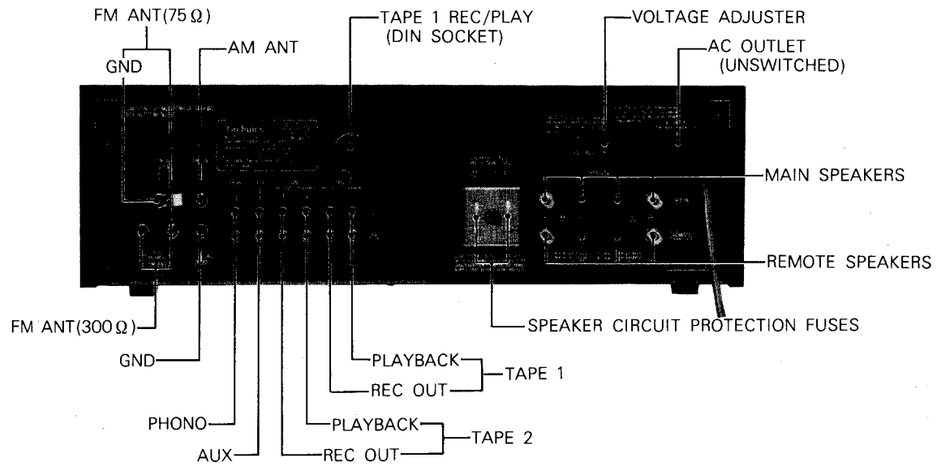
AM-TUNERTEIL

Empfangsbereich	525 ~ 1605 kHz
Empfindlichkeit (20 dB Fremdspannungsabstand)	30μV, 300μV/m
Selektivität	30 dB
Spiegelselektion bei 1000 kHz	45 dB
ZF-Festigkeit bei 1000 kHz	40 dB

ALLGEMEINE DATEN

Leistungsaufnahme	410 W
Netzspannung umschaltbar (50 Hz/60Hz)	110V/120V/220V/240V
Abmessungen (B x H x T)	430 x 145 x 260mm
Gewicht	7,7 kg

■ LOCATION OF CONTROLS (Rear Panel)



* This photo shows only the products for (XA).
* The products for other destinations except (XA) are not equipped with AC outlet.

CARACTERISTIQUES TECHIQUES

Sujet à changement sans préaris.

[DIN 45 500]

SECTION AMPLIFICATEUR

Puissance RMS (continue) à 1 kHz pour l'ensemble des canaux excités	2 x 40 W (4Ω) 2 x 38 W (8Ω)
Puissance RMS (continue) à 40 Hz ~ 16 kHz pour l'ensemble des canaux excités	2 x 37 W (4Ω) 2 x 35 W (8Ω)
Puissance RMS (continue) à 20 Hz ~ 20 kHz pour l'ensemble des canaux excités	2 x 35 W (8Ω)
Largeur de bande de puissance pour l'ensemble des canaux excités, –3 dB	10 Hz ~ 25 kHz (4Ω)
Distorsion harmonique totale	
pour la puissance mesurée à 1 kHz	0.04% (4Ω, 8Ω)
pour la puissance mesurée à 40 Hz ~ 16 kHz	0.04% (4Ω, 8Ω)
pour la puissance mesurée à 20 Hz ~ 20 kHz	0.04% (8Ω)
pour la demi-puissance mesurée à 20 Hz ~ 20 kHz	0.025% (8Ω)
pour la demi-puissance mesurée à 1 kHz	0.009% (8Ω)
pour une puissance mesurée de –26 dB, 1 kHz	0.04% (4Ω)
pour une puissance mesurée de 50 mW, 1 kHz	0.2% (4Ω)
Distorsion d'intermodulation	
pour la puissance mesurée à 250 Hz: 8 kHz=4:1, 4Ω	0.04%
pour la puissance mesurée à 60 Hz: 7 kHz=4:1, 8Ω	0.04%
Tension résiduelle de bruit	0.6mV
Facteur d'amortissement	16 (4Ω), 32 (8Ω)
Sensibilité & impédance d'enltrée	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/33 kΩ
PLAYBACK (TAPE 1), REC/PLAY entrée	180 mV/39 kΩ
PLAYBACK (TAPE 2)	150 mV/33 kΩ
Voltage d'entrée maximum (PHONO, 1 kHz, RMS)	130 mV
Rapport signal/bruit	
pour la puissance nominale, 4Ω	
PHONO	70 dB (IHF, A: 78 dB)
AUX	88 dB (IHF, A: 95 dB)
pour une sortie de –26 dB, 4Ω PHONO	68 dB, **AUX** 77 dB
pour une sortie de 50 mW, 4Ω PHONO	64 dB, **AUX** 65 dB
Réponse de fréquence	
PHONO	Courbe standard RIAA ±0.5 dB
AUX	20 Hz ~ 20 kHz, ±0.5 dB 10 Hz ~ 30 kHz, –1 dB
Réglage de la tonalité	
BASS (graves)	50 Hz, +10 dB ~ –10 dB
TREBLE (aigus)	10 kHz, +10 dB ~ –10 dB
Filtre d'aigu	7 kHz, –6 dB/oct.
Correction physiologique (volume à –30 dB)	50 Hz, +9 dB
Tension de sortie REC OUT (TAPE 1, 2)	150 mV
REC/PLAY (sortie)	30 mV
Equilibrage de canaux (250 Hz ~ 6300 Hz), AUX	±1.0 dB
Ecart canaux à 1 kHz, AUX	55 dB
Niveau des écouteurs et impédance de sortie	400 mV/330Ω
Impédance de charge PRINCIPALE ou ELOIGNEE	4 ~ 16Ω
PRINCIPALE + ELOIGNEE	8 ~ 16Ω

SECTION TUNER FM

Gamme reçue	88 ~ 108 MHz
Impédance d'antenne	300Ω (symétrique) 75Ω (asymétrique)
Sensibilité (± 40 kHz déviation)	
Signal/bruit 30 dB	1,9μV (300Ω), 1,3μV (75Ω)
Signal/bruit 26 dB	1,7μV (300Ω), 1,2μV (75Ω)
Signal/bruit 20 dB	1,5μV (300Ω), 0,9μV (75Ω)
IHF Sensibilité	1,9μV (IHF '58)
IHF Sensibilité pour 46 dB	22μV (75Ω), STEREO
Distorsion harmonique totale	
MONO	0.15%
STEREO	0.3%
Signal/bruit(±40 kHz déviation) MONO	60 dB (IHF: 75 dB)
STEREO	58 dB (IHF: 70 dB)
Réponse de fréquence	20 Hz ~ 15 kHz, $^{+1}_{-2}$ dB
	20 Hz ~ 14 kHz, ±1,5 dB
Sélectivite alternée par canal	70 dB
Taux de capture	1,2 dB
Réjection de fréquence image à 98 MHz	70 dB
Réjection FI à 98 MHz	90 dB
Réjection de réception non sélective à 98 MHz	80 dB
Suppression AM	55 dB
Séparation stéréophonique 1 kHz	45 dB, **10 kHz** 35 dB
Courant porteur de dispersion 19 kHz	–33 dB (–40 dB, IHF)
38 kHz	–48 dB (–50 dB, IHF)
Point limite	1,2μV
Largeur de bande Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Equilibrage de canaux (250 Hz ~ 6300 Hz)	±1,5 dB

SECTION TUNER AM

Gamme reçue	525 ~ 1605 kHz
Sensibilité (Rapport S/B 20 dB)	30μV, 300μV/m
Sélectivité	30 dB
Réjection de fréquence image à 1000 kHz	45 dB
Rélection FI à 1000 kHz	40 dB

GENERALITES

Consommation	410 W
Alimentation (50 Hz/60 Hz)	110V/120V/220V/240V
Dimensions (L x H x Pr)	430 x 145 x 260 mm
Poids	7.7 kg

■ ALIGNMENT INSTRUCTIONS ENGLISH

Notes:
1. Loudness switch ····· OFF
2. Band selector switch ····· AM/FM (FM, RF FM-IF)
3. FM muting/mode switch ·····OFF/FM MONO
4. Speaker switch ·····ON
5. Tape monitor switch ····· SOURCE
6. Filter switch ····· OFF
7. Maintain line voltage at rated voltage.
8. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR CONNECTION	SIGNAL GENERATOR FREQUENCY	DIAL SETTING	INDICATOR (AC VTVM or SCOPE) (DISTORTION METER)	ADJUSTMENT POINTS	REMARKS
	AM ALIGNMENT					
1	High side through 0.001μF to **AM** antenna trimmer terminal. Common to chassis.	455kHz (30%Mod. with 400Hz)	Point of non-inter ference	Connect VTVM or scope to **TP201.** through 0.1μF	T201 (1st IFT) Z201 (2nd IFT)	●Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver	600kHz (30%Mod. with 400Hz)	600kHz	Connect VTVM or scope to speaker terminals of receiver.	L202 (OSC Coil) L201 (ANT Coil)	●Adjust for maximum output, Adjust L201 by moving coil bobbin along ferrite core.
3	Fashion loop of several turns of wire and radiate signal into loop of receiver	1500kHz (30%Mod.) with 400Hz)	1500kHz	Connect VTVM or scope to speaker terminals of receiver.	CT5 (OSC Trimmer) CT4 (ANT Trimmer)	●Adjust for maximum output. ●Repeat steps (2) and (3).
	FM-IF ALIGNMENT					
4		No Signal	Point of non-inter ference.	Tuning meter of set.	T101 (DISCRI IFT) (A) Orange Core	●FM muting/mode switch to ON/FM AUTO. ●Adjust for center position of tuning meter.
	FM-RF ALIGNMENT					
5	Connect to FM 300Ω antenna terminal through FM dummy antenna.	90MHz (100%Mod with 400Hz)	90MHz	Connect scope to speaker terminals of receiver.	L5 (OSC Coil) L3 (RF-DET Coil) L1 (ANT Coil)	●FM muting/mode switch to OFF/FM MONO. ●Adjust for maximum amplitude and symmetrical curve. (Refer to fig. 4).
6	Connect to FM 300Ω antenna terminal through FM dummy antenna.	106MHz (100%Mod. with 400Hz)	106MHz	Connect scope to speaker terminals of receiver.	CT3 (OSC Trimmer) CT2 (RF DET Trimmer) CT1 (ANT Trimmer)	●Adjust for maximum amplitude and symmetrical curve. ●Repeat steps (5) and (6).
	FM MONO DISTORTION ALIGNMENT					
7	Connect to FM 300Ω antenna terminal through FM dummy antenna. Apply 60 dB to set.	100MHz (100%Mod. with 400Hz)	100MHz	Connect distortion meter to speaker terminals of receiver.	T101 (DISCRI IFT) (B) Green Core	●Adjust for minimum distortion of left output. ●Repeat steps (4) and (7).
	FM MUTING LEVEL ALIGNMENT					
8	Connect to FM 300Ω antenna terminal through FM dummy antenna. Apply 16dB(6.3μV)to set.	100MHz (100%Mod. with 400Hz)	100MHz	Connect VTVM or scope to speaker terminals.	VR101	●FM muting/mode switch to "ON/FM AUTO. ●Adjust so that output can be obtained.
	FM MPX PILOT ALIGNMENT					
	Using a frequency counter			Using alternate system		
9	**1** 100MHz Non-modulated mono signal applied to set. (Apply 60dB) **2** FM muting/mode switch to "ON/FM AUTO" **3** Connect frequency counter to **TP301** through resistor (100kΩ). **4** Adjust **VR301** to 19kHz, ±30Hz.			**1** Apply stereo signal from generator or stereo station to receiver. **2** Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in fig. 5.		
	Notes: 1. Stereo modulator ····· ● Connect stereo modulator output to EXT MOD terminal of signal generator. ● Pilot signal modulation to "10%" 2. FM signal generator ····· ● Frequency approximatery 100MHz/Output level to "72dB (IHF)" ● Modulation mode to "FM" 3. Selector switch to "FM" 4. FM muting/mode switch to "ON/FM AUTO"					
	FM SIGNAL GENERATOR CONNECTION	STEREO MODULATOR MODE & MOD. RATE		INDICATOR (AC VTVM)	ADJUSTMENT POINT	REMARKS
	FM STEREO SEPARATION ALIGNMENT					
10	FM 300Ω antenna terminals through FM dummy antenna.	(1kHz 30% Modulation) MODE **L** (and R) Pilot signal to "ON"		Connect VTVM to speaker terminals through low pass filter. (Refer to fig. 6)	VR302	●Tuning at 100MHz. ●Make adjustment so that, when the antenna input is subjected to **L** modulation (or **R** modulation), **R** channel output (or **L** channel output) becomes minimum.

■ ABGLEICHANWEISUNGEN — DEUTSCH

(Für Deutshland)

Anmerkungen:
1. Loudness-Schalter . . . . . OFF
2. Bereichsschalter . . . . . {AM (AM Abgleich) / FM (FM Abgleich)
3. FM Muting/mode-Schalter . . . . . OFF/FM MONO
4. Lautsprecher-Schalter . . . . . ON
5. Tape/Monitor-Umschalter . . . . . SOURCE
6. Filter-Schalter . . . . . OFF
7. Die Netzspannung auf ihren Sollwert einstellen.
8. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.

	AM/UKW MESSENDER ANSCHLUSS	FREQUENZ	SKALENZEIGEREINSTELLUNG DES TUNER	ANZEIGE (Wechselstrom Röhrenvoltmeter oder Oszillograph ozw. Klirrfaktor-Meßgerät)	ABGLEICHSPUNKTE	BEMERKUNGEN
	AM-ABGLEICH					
1	Heißes Ende des Meßsenders über einen 0.001µF Kondensator an den AM Antenneneingang schließen. Kaltes Ende an Masse.	455kHz (400Hz Modulat., 30%)	Kein Empfang	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	T201 (1. IFT) Z201 (2. IFT)	• Auf max. Ausgang abgleichen.
2	Das Meßsendersignal induktiv in den Tuner speisen. Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	600kHz (400Hz Modulat., 30%)	600kHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L202 (Osc. Spule) L201 (Ant. Spule)	• Auf max. Ausgang abgleichen. • L201 wird abgeglichen, indem die Spule am Ferritstab. entlanggeschoben wird.
3	Das Meßsendersignal induktiv in den Tuner speisen, Hierzu behelfsmäßig eine Rahmenantenne fertigen und an den Eingang schließen.	1500kHz (400Hz Modulat., 30%)	1500kHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	CT5 (Osc. Trimmer) CT4 (Ant. Trimmer)	• Auf max. Ausgang abgleichen. • Schritt (2) und (3) sind zu wiederholen.
	UKW ZF-ABGLEICH					
4		Kein Signal	Kein Empfang	Abstimmanzeige.	T101 (Diskriminator IFT) [A]	• FM Muting-Schalter auf ON stellen. • Den Abstimmungsanzeiger auf den zentrum Wert einstellen.
	UKW HF-ABGLEICH					
5	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	87.5MHz (400Hz Modulat., 100%)	87.5MHz (Frequenz Min.)	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	L5 (Osc. Spule)	• FM Muting-Schalter auf OFF stellen. • Auf max. Ausgang abgleichen.
6	Meßsender üder eine Kunstantenne an den UKW-Antenneneingang schließen.	90MHz (400Hz Modulat., 100%)	90MHz	Röhrenvoltmeter oder Oszilograph über den Lautsprecher schließen.	L3 (Det. Spule) L1 (Ant. Spule)	• Auf max. Amplitude bei entsprechender Linearität abgleichen. (Vgl. Abb. 4)
7	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	106MHz (400Hz Modulat., 100%)	106MHz	Röhrenvoltmeter oder Oscillograph über den Loutsprecher schließen.	CT3 (Osc. Trimmer) CT2 (Det. Trimmer) CT1 (Ant. Trimmer)	• Auf max. Amplitude bei entsprechender Linearität abgleichen. (Vgl. Abb. 4) • Schritt (5), (6) und (7) sind zu wiederholen.
	ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO					
8	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	100MHz (400Hz Modulat., 100%)	100MHz	Klirrfaktor-Meßbrücke über den Lautsprecher schlieben.	T101 (Diskriminator IFT) [B]	• Auf min. Verzerrung auf der Klirrfaktor-Meßbürcke abgleichen. • Schritt (4) und (8) sind zu wiederholen.
	UKW-MUTING-ABGLEICH					
9	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen. Meßsender auf 16 dB (6.3µV) einstellen.	100MHz (400Hz Modulat., 100%)	100MHz	Röhrenvoltmeter oder Oszillograph über den Lautsprecher schließen.	VR101	• Muting Schalter auf "ON" stellen. • So einstellen, daß ein Ausgang zu vernehmen ist.

UKW-STEREO-DEKODER-ABGLEICH

	Unter Verwendung eines Zählers	Alternativ-Meßmethode
10	1. Unmoduliertes Mono-Signal 100 MHz in das Gerät speisen. 2. FM Muting-Schalter auf "ON /FM AUTO" stellen. 3. Zähler über einen Widerstand 100K ohm an **TP301** schließen. 4. **VR301** auf 19kHz ±30Hz einstellen.	1. Stereosignal entweder von einem Stereogenerator oder einem Sender einspeisen. 2. **VR301** so einstellen, bis die Stereolampe auf leuchtet. Schleifer von **VR301** sichern, wie in Abb. 5 gezeigt.

KANALTRENNUNG-ABGLEICH

Anmerkungen:
1. Stereo-Modulator . . . . . Ansgang des Stereo-Modulators an den Eingang EXT MOD des Meßsenders schließen. Eingebauter Oszillator . . . . . 1kHz/Pilotton-Modulation 10%
2. UKW Meßsender . . . . . Auf etwa 100MHz einstellen. Ausgangspegel 72dB (IHF). Modulation FM
3. Bereichsschalter . . . . . FM
4. Muting/Mode-Schalter . . . . . ON/FM AUTO

	ANSCHLUSS DES UKW MESSENDERS	STEREO MODULATOR MODE oder MOD. RATE	ANZEIGE (Röhrenvoltmeter oder Oszillograph)	ABGLEICHSPUNKTE	ANMERKUNGEN
11	Meßsender über eine Kunstantenne an den UKW-Antenneneingang schließen.	**L** (und R) Modulation 30%	Röhrenvoltmeter oder Oszillograph über Tiefpassfilter an den Tuner-Ausgang schließen. Vgl. Abb. 6.	VR302	• Auf min. Ausgang **rechter** (und linker) abgleichen.

■ INSTRUCTIONS D'ALIGNEMENT — FRANÇAIS

Notes:
1. Commutateur de physiologique (loudness) . . . . . OFF
2. Sélecteur de gamme . . . . . {AM (Alignement AM) / FM (Alignement FM)
3. Commutateur de silencieux . . . . . OFF/FM MONO
4. Commutateur d'enceintes . . . . . ON
5. Commutateur de contrôle auditif . . . . . SOURCE (relâchée)
6. Commutateur de filter . . . . . OFF
7. Conserver la tension du secteur à la tension nominale.
8. Le signal du générateur ne doit pas être plus élevé qu'il n'est nécessaire à obtenir une lecture en sortie.

	AM/FM GENERATEUR BRANCHMENT	FREQUENCE	AIGUILLE SUR LE CADRAN	INDICATEUR(C.A. VOLTMETRE ELECTRONIQUE OSCILLOSCOPE OU DISTORSIONMETRE).	POINTS DE REGLAGE	OBSERVATIONS
	ALIGNEMENT AM					
1	Côté chaud, à travers 0.001µF, sur le trimmer de l'antenne AM, commum an shâssis	455kHz (modulé à 30% par 400Hz)	Point sans signal	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	T201 (1 transfo FI) Z201 (2 transfo FI)	• Réglez au maximum de signal de sortie.
2	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du l'ampli-tuner	600kHz (modué à 30% par 400Hz)	600kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L202 (bobine OSC) L201 (bobine ANT)	• Réglez au maximum de signal de sortie. Réglez L201 en déplaçant la bobine le long du noyau de ferrite.
3	Faire une boucle de quelgues tours et rayonner le signal dans le cadre du l'ampli-tuner.	1500kHz (modulé à 30% par 400Hz)	1500kHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT5 (trimmer OSC) CT4 (trimmer ANT)	• Réglez au maximum de signal de sortie. • Recommencez les étapes (2) et (3).
	ALIGNEMENT FI-FM					
4		Sans signal	point sans signal	Indicateur d'accord de l'appareil	T101 (Transfo FI discri.) [A]	• Commutateur de silencieux sur ON. • Réglez pour atteindre position médiane sur l'indicateur d'accord.
	ALIGNEMENT RF-FM					
5	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	90MHz (modulé à 100% par 400Hz)	90MHz	Branchez un voltmétre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	L5 (bobine OSC) L3 (bobine DET) L1 (bobine ANT)	• Commutateur de silencieux sur OFF. • Régler au maximum d'amplitude et de symétrie. (Voir fig. 1)
6	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	106MHz (modulé à 100% par 400Hz)	106MHz	Branchez un voltmétre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	CT3 (trimmer OSC) CT2 (trimmer DET) CT1 (trimmer ANT)	• Régler au maximum d'amplitude et de symétrie. (Voir fig. 1) • Recommencez les étapes (5) et (6)
	REGLAGE DE LA DISTORSION FM EN MONO					
7	Branchez sur la prise d'antenne FM à travers une antenne fictive FM.	100MHz (modulé à 100% par 400Hz)	100MHz	Branchez un distorsio métre sur les bornes de haut-parleur de l'appareil.	T101 (Transfo FI discri.) [B]	• Réglez au minimum d'indication du distorsiomètre. Recommencez les étapes (4) et (7).
	REGLAGE DU SEUIL DU SILENCIEUX D'ACCORD					
8	Branchez sur la prise d'antenne FM à travers une antenne fictive FM. Niveau de sortie du générateur 16 dB (6.3µV).	100MHz (modulé à100% par 400Hz)	100MHz	Branchez un voltmètre électronique ou un oscilloscope sur les bornes de haut-parleur de l'ampli-tuner	VR101	• Commutateur de silencieux sur "ON" • Régler pour obtenir une lecture en sortie.

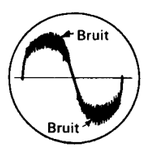
ALIGNEMENT DU PILOTE MULTIPLEX FM

	Avec un fréquencemétre	Par un outre système
9	1. Signal mono 100 MHz non modulé appliqué à l'appareil. 2. Commutateur de silencieux sur "ON/FM AUTO" 3. Branchez le fréquencemètre sur **TP301** à travers une résistance de 100kΩ. 4. Réglez **VR301** sur 19kHz ±30Hz.	1. Appliquez à l'appareil un signal stéréo provenant d'un générateur ou de la réception d'un émetteur. 2. Réglez **VR301** jusqu à ce que l'indicateur de stéréophonic s'allume. Collez le curseur de **VR301** comme indiqué sur la fig. 2.

REGLAGE DE LA SEPARATION DES CANAUX

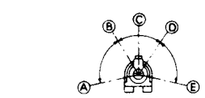
Notes: 1. Modulateur stéréo . . . . . Branchez sa sortie sur la prise EXT. MOD. du générateur. OSC interne . . . . . 1kHz Modulation du signal pilote 10%
2. Générateur de signal . . . . . Fréquence env. 100MHz, niveau de sortie 72dB (IHF), genre de modulation sur FM.
3. Commutateur de gamme . . . . FM 4. Commutateur de silencieux. . . . . ON/FM AUTO

	BRANCHEMENT DU GENERATEUR DE SIGNAL	MODE DU MODULATEUR STEREO ET TAUX DE MODULATION	INDICATEUR (VOLTMETRE ELECTRONIQUE OU OSCILLOSCOPE)	POINTS DE REGLAGE	OBSERVATIONS
10	Borne d'antenne FM à travers antenne fictive.	**Gauche** (et droite) à 30% de modulation.	Sur les bornes de haut-parleur à travers un filtre passe-bas, voir fig. 3.	VR302	• Réglez au minimum de sortie **droite** (et gauche)



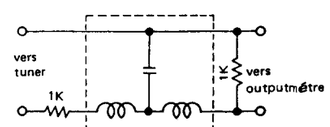
Sinusoïdale

Fig. 1



VR301
Ⓐ~Ⓑ, Ⓓ~Ⓔ: Position stéréo arrêt
Ⓑ~Ⓓ : Position stéréo en marche (éclairage du voyant indicateur)
Ⓒ : Point de réglage du circuit pilote

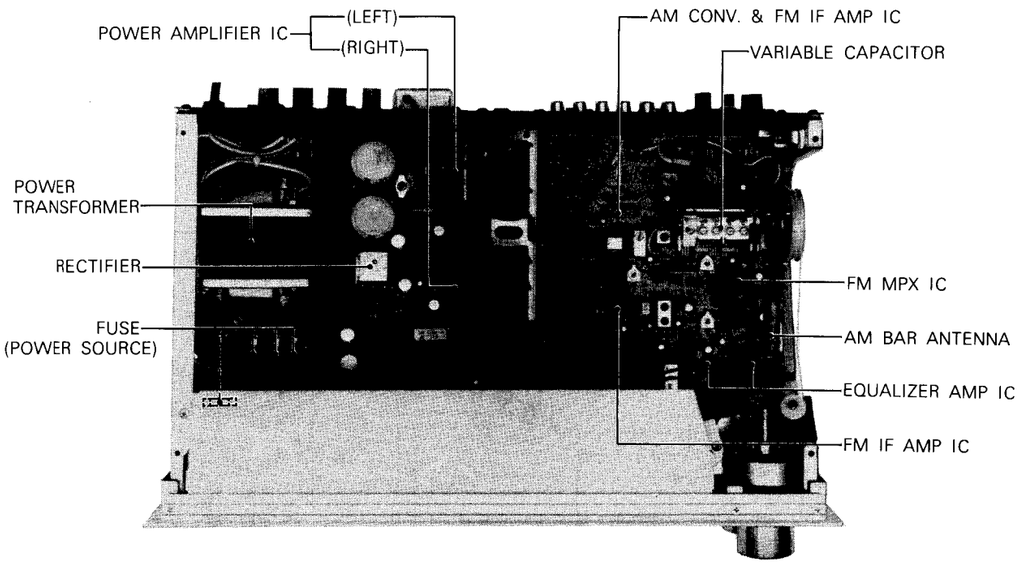
Fig. 2



FILTRE PASSE-BAS (fc = 15 kHz ~19 kHz)

Fig. 3

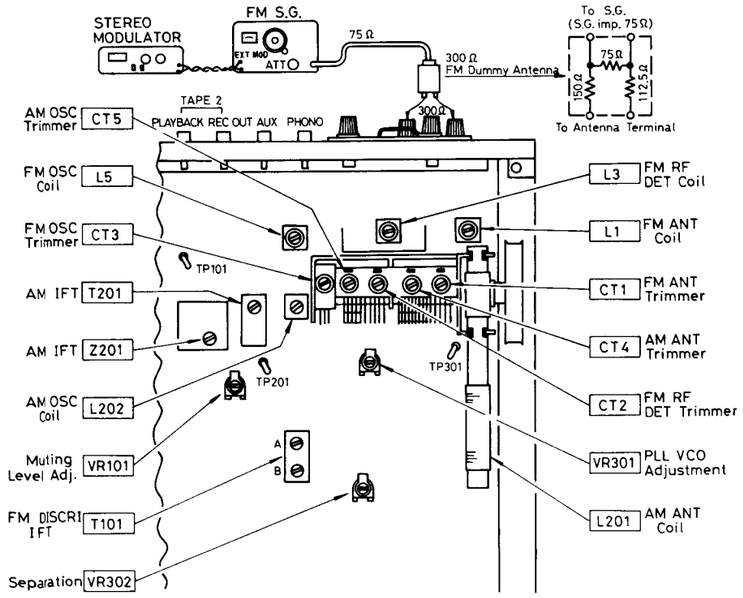
■ PRINTED CIRCUIT BOARD VIEW

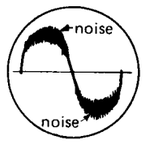


■ NOTE

The unit is provided with the speaker circuit protection fuses at the right and left channels respectively. The fuse is to prevent the power IC from destruction, should the speaker terminals be short-circuited. Accordingly, if the unit fails to function upon completion of the speaker connections, check the speaker circuit protection fuses first of all for possible blowing.

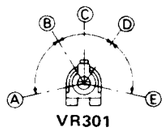
■ ALIGNMENT POINTS





(SINE WAVE)

Fig. 4 (Abb. 4)



VR301

A – B, D – E: Stereo OFF Position.
B – D: Stereo ON Position (Indicator Lighting).
C: Adjust Point of Pilot Circuit.

Fig. 5 (Abb. 5)

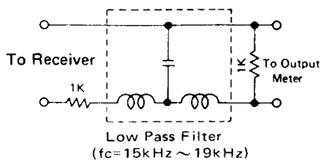
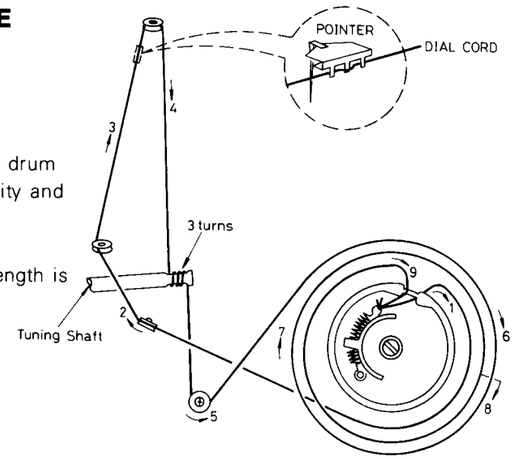


Fig. 6 (Abb. 6)

■ DIAL CORD INSTALLATION GUIDE



- For threading a fresh cord, proceed as follows.
  1. Prepare a fresh cord more than 200cm(78-3/4") in length.
  2. Bring the variable capacitor into a state where the drum is completely turned to the right (maximum capacity and lowest frequency for the variable capacitor).
  3. Direct the cord in the order from 1 to 9.
  4. Stretch the cord in such a tension as the spring length is elongated by 1.5 times that of the original state.
  5. Fix the knot of the cord with the bond.

■ TO REMOVE CABINET

1. Remove the four cabinet mounting screws (nos 1 ~ 4 screws in fig. 7).
2. Sliding it toward Ⓐ direction and lifting it upward Ⓑ direction as shown in fig. 7.
3. When the cabinet is installed, insert the metal fitting of cabinet (as shown in fig. 8) into the space between the front panel and light reflector.

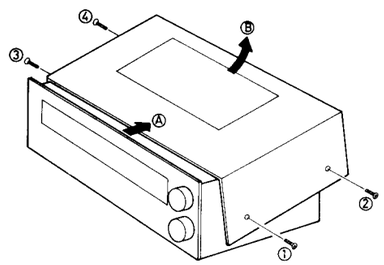


Fig. 7

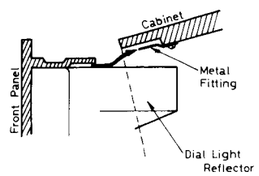
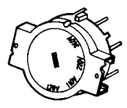


Fig. 8

■ THE UNIT CAN USE TWO DIFFERENT PARTS IN VOLTAGE ADJUSTER

1. When using the part number ESE37200, connect as shown in fig. 9.
2. When using the part number SSR53S, connect as shown in fig. 10.



(ESE37200)

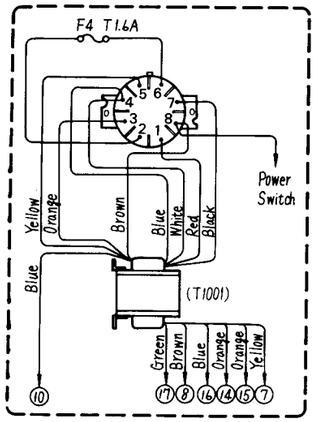


Fig. 9

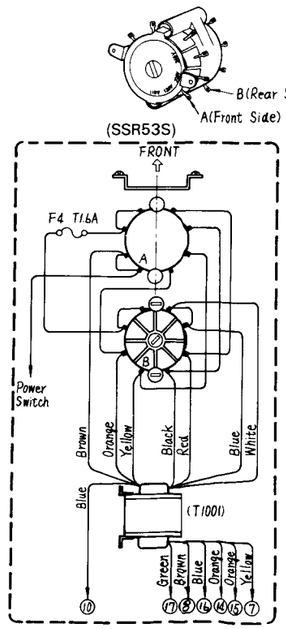
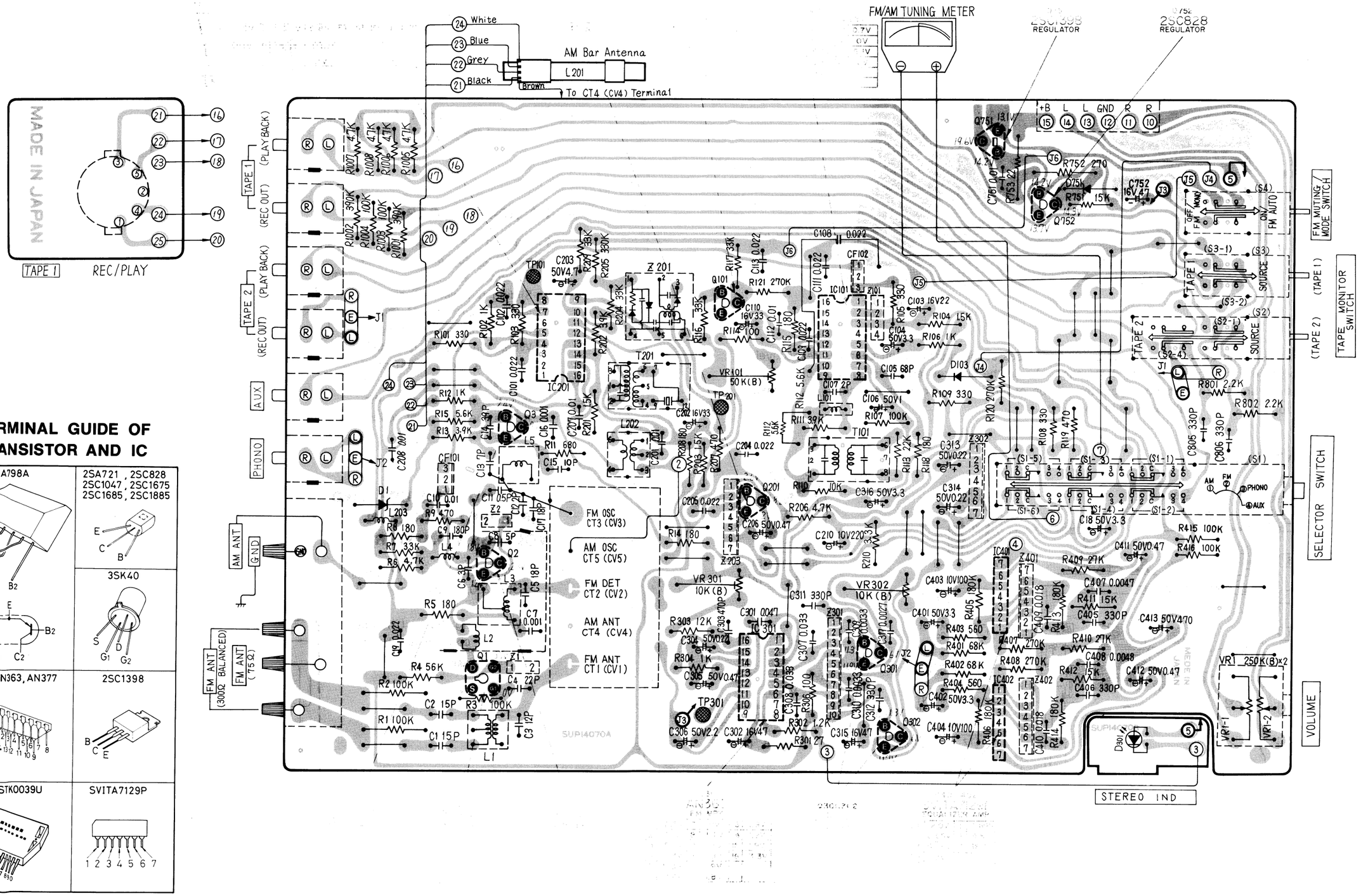


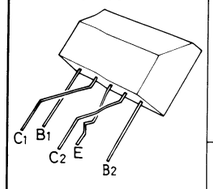
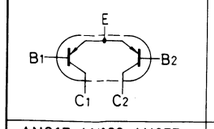
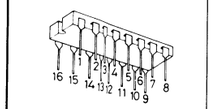
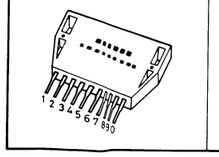
Fig. 10

■ FM/AM TUNER AND EQUALIZER CIRCUIT BOARD

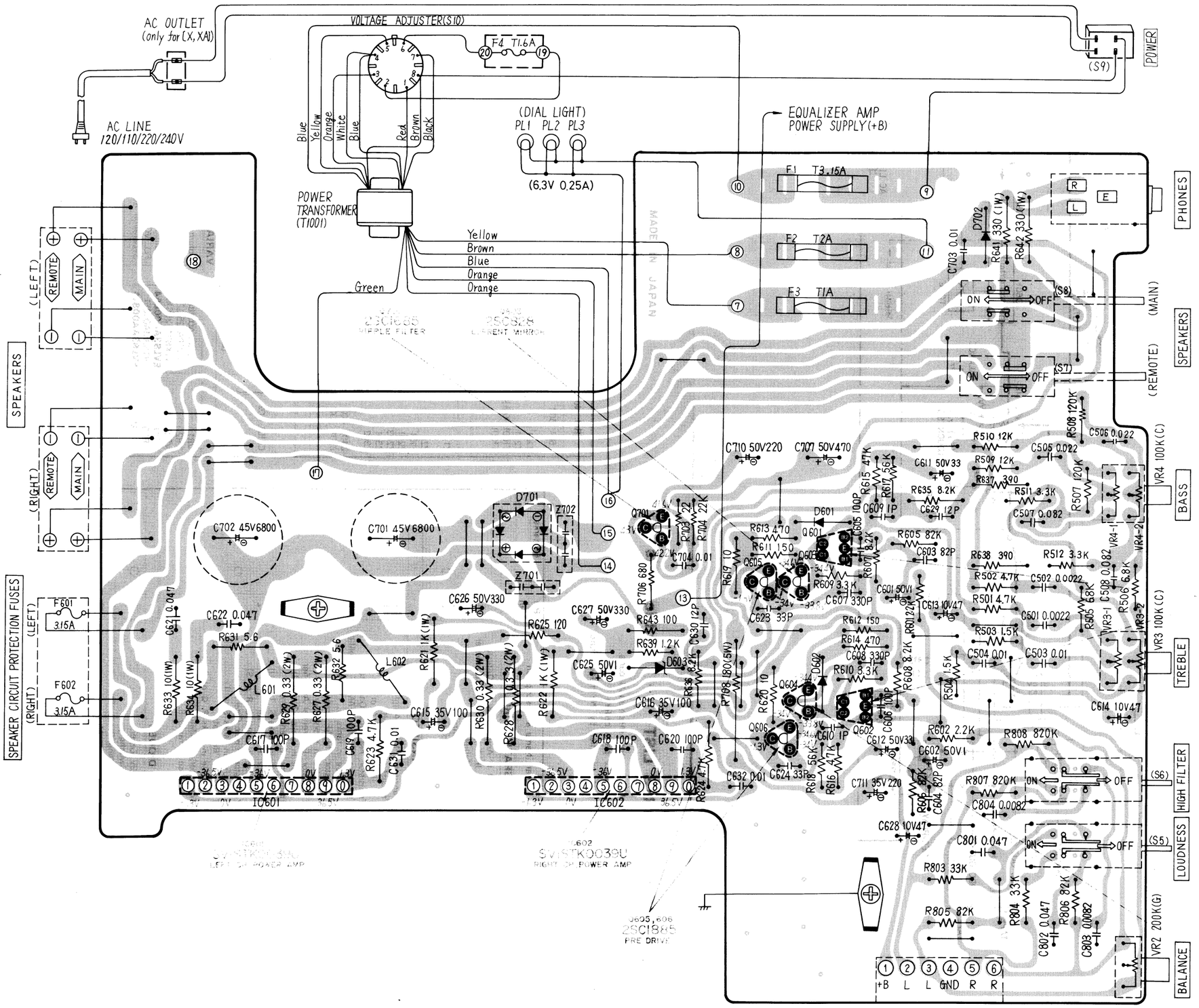
Earth (Ground) Lines



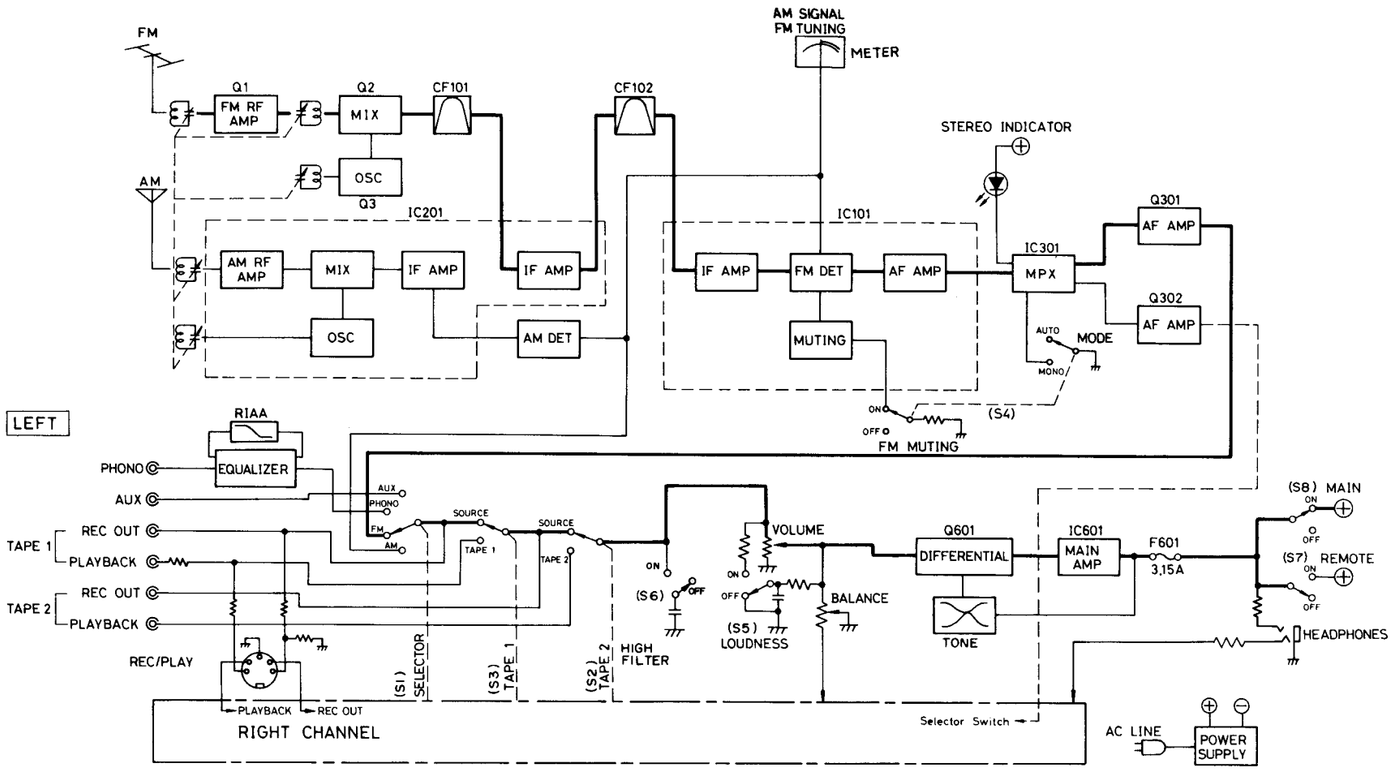
■ TERMINAL GUIDE OF TRANSISTOR AND IC

2SA798A 	2SA721 , 2SC828 2SC1047 , 2SC1675 2SC1685 , 2SC1885
	3SK40
AN217, AN363, AN377 	2SC1398
SVISTK0039U 	SVITA7129P

■ TONE, MAIN AMPLIFIER AND POWER SUPPLY CIRCUIT BOARD



■ BLOCK DIAGRAM



■ REPLACEMENT PARTS LIST ····· Electric Parts

NOTES: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. ■ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
			INTEGRATED CIRCUIT		
IC101	AN377		IC, FM IF Amplifier & FM Detector	1	
IC201	AN217-BB		IC, FM IF Amplifier & AM Converter	1	
IC301	AN363		IC, FM Multiplex	1	
IC401, 402	SVITA7129P		IC, Equalizer Amplifier	2	
IC601, 602	SVISTK0039U		IC, Power Amplifier	2	○
			TRANSISTORS		
Q1	3SK40-M		Transistor, FM RF Amplifier	1	
Q2	**2SC1047-C**		Transistor, FM Mixer (Use in ranks C or D)	1	
Q3	2SC1675-L1		Transistor, FM Local Oscillator	1	
Q101, 201	**2SC1328-T**		Transistor, Muting & AM AF Amplifier (Use in ranks S, T or U)	2	
Q301, 302	**2SA902S-F**		Transistor, FM AF Amplifier (Use in ranks F or G)	2	
Q601, 602	**2SA798A-G2**		Transistor, Differential Amplifier (Use in ranks F2 or G2)	2	
Q603, 604	**2SC1328-T**		Transistor, Current Mirror (Use in ranks S, T or U)	2	
Q605, 606	2SC1885-Q		Transistor, Pre Driver (Use in ranks Q, R or S)	2	
Q701	2SC1685-T		Transistor, Ripple Filter (Use in ranks S or T)	1	○
Q751	**2SC1398-Q**		Transistor, Regulator (Use in ranks P, Q or R)	1	
Q752	**2SC1328-T**		Transistor, Regulator (Use in ranks S, T or U)	1	
			DIODES		
D1	SVDMZ303BM		Diode, 3V Zener	1	○
D103	OA99		Diode, Switching	1	
D301	LN25RP		Light Emitting Diode, Stereo Indicator	1	
D601, 602	MA27B		Diode, Current Mirror	2	○
D603	SVDMZ314		Diode, 14V Zener	1	
D701	SVDS4VB10	S	Rectifier	1	
D702	**SM112**	S	Rectifier	1	
D751	SVDMZ414		Diode, 14V Zener	1	
			COILS and TRANSFORMERS		
L1	SLA4P25		Coil, FM Antenna	1	
L2	**RLQY25S2**		Coil, Choke	1	
L3	SLD4P13		Coil, FM RF Detector	1	
L4	**RLQY15G5**		Coil, Choke	1	
L5	SLO4P31		Coil, FM Local Oscillator	1	
L101	SLQX180-2		Coil, Choke	1	
L201	SLF2C11		Coil, AM Bar Antenna	1	
L202	SLO2C3-P		Coil, AM Local Oscillator	1	
L203	SLQX101-2D		Coil, Choke	1	

Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
L601, 602	SLQY15G-3P		Coil, Power Amplifier Output	2	
T101	SLI4D513-3		Transformer, FM IF Detector	1	
T201	SLI7D101-M		Transformer, AM IF	1	
T1001 (XAL) only	SLT5P147-W	S	Transformer, Power Source	1	○
T1001	SLT5P145-W	S	Transformer, Power Source	1	○
			COMPONENT COMBINATION		
Z1	EXRP102Z223S		Component Combination, 22kΩ & 0.001μF	1	
Z2	EXRP103P102S		Component Combination, 1kΩ & 0.01μF	1	○
Z101	EXF3SL04C		Component Combination, 0.01μF (X3)	1	○
Z201	SLI9F101-Z		Component Combination, AM Detector	1	
Z203	EXBH85005K		Component Combination, Resistors	1	○
Z301	EXBH88007K		Component Combination, Resistors	1	○
Z302	EXA6YD04C		Component Combination, 3.9kΩ (X2), 100kΩ (X2), 820pF(X2)	1	○
Z401, 402	EXA6SD01C		Component Combination, Equalizer	2	○
Z701, 702	EXRFS203ZS		Component Combination, 0.01μF (X2)	2	○
			CERAMIC FILTERS		
CF101, 102	SVFE107MS8-A		Ceramic Filter, Red, 10.7MHz	each 2	
	SVFE107MS8-B		Ceramic Filter, Blue, 10.67MHz		
	SVFE107MS8-C		Ceramic Filter, Orange, 10.73MHz		
	SVFE107MS8-D		Ceramic Filter, Black, 10.64MHz		
	SVFE107MS8-E		Ceramic Filter, White, 10.76MHz		
	(Use pair ranks as same as CF101 and CF102.)				
			VARIABLE RESISTORS		
VR1	EWFMKA031BF5		Volume Control, 250kΩ (B)	1	○
VR2	EVHGPAF25G25		Balance Control, 200kΩ (C)	1	○
VR3, 4	EWKB9AF25C15		Bass & Treble Control, 100kΩ (C)	2	○
VR101	**EVLS3AA00B54**		Muting Level Adjustment, 50kΩ (B)	1	
VR301	EVTS3MA00B14		PLL VCO Adjustment, 10kΩ (B)	1	
VR302	**EVLS3AA00B14**		Separation Adjustment, 10kΩ (B)	1	
			VARIABLE CAPACITORS		
CV1~CV5 (CT1~CT5)	ECVC751K144A		Variable Capacitor, with Trimmer	1	
			LAMPS		
PL1, 2, 3	XAMR62S	S	Lamp, Dial (6.3V 0.25A)	3	
			FUSES		
F1	XBA2C31TRO	S	Fuse, 3.15A.T(250V) Power Source	1	
F2	XBA2C20TRO	S	Fuse, 2A.T(250V) Power Source	1	
F3	XBA2C10TRO	S	Fuse, 1A.T(250V) Power Source	1	
F4	XBA2C16TRO	S	Fuse, 1.6A.T(250V) Power Source	1	
F601, 602	XBA2C31SSO	S	Fuse, 3.15A(250V) Power Speaker Circuit	2	

Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
SWITCHES					
S1	ESRM164F25E		Switch, Selector	1	○
S2	SSL125		Switch, Tape Monitor 2	1	○
S3	SSL121		Switch, Tape Monitor 1	1	○
S4	SSL123		Switch, FM Muting/Mode	1	○
S5, 6	SSL123		Switch, Loudness & High-Filter	2	
S7, 8	SSH223S		Switch, Speakers	1	
S9	ESL21191	S	Switch, Power Source	1	○
S10	ESE37200	S	Switch, Voltage Adjustment(See page 8)	1	
S10	SSR53S	S	Switch, Voltage Adjustment(See page 8)	1	

NOTES:

Guide letters of Resistor and Capacitor indicate,

Resistors

ERD ····· Carbon
ERO ····· Metal film
ERF ····· Non-flammable
ERG ····· Metal oxide
ERX ····· Metal film

Capacitors

ECC ····· Ceramic
ECQM ····· Polyester
ECE ····· Electrolytic
ECK ····· Ceramic
ECQS ····· Polystyrene

Ref. No.	Part No.	
RESISTORS		
R1, 2 Except for (XAL)	**ERD50TJ104**	
R3	**ERD25TJ104**	
R4	**ERD25TJ563**	
R5	**ERD25TJ181**	
R6	**ERD25TJ472**	
R7	**ERD25TJ333**	
R8	**ERD25TJ181**	
R9	**ERD25TJ471**	
R11, 12	**ERD25TJ102**	
R13	**ERD25TJ392**	
R14	**ERD25TJ181**	
R15	**ERD25TJ562**	
R101	**ERD25TJ331**	
R102	**ERD25TJ102**	
R103	**ERD25TJ331**	
R104	**ERD25TJ153**	
R105	**ERD25TJ331**	
R106	**ERD25TJ102**	
R107	**ERD25TJ104**	
R108, 109	**ERD25TJ331**	
R110	**ERD25TJ103**	
R111	**ERD25TJ392**	
R112	**ERD25TJ562**	
R113	**ERD25TJ222**	
R114	**ERD25TJ101**	
R115	**ERD25TJ181**	
R116, 117	**ERD25TJ333**	
R118	**ERD25TJ181**	
R119	**ERD25TJ471**	
R120, 121	**ERD25TJ274**	
R201	**ERD25TJ152**	
R202	**ERD25TJ392**	
R203	**ERD25TJ152**	
R204	**ERD25TJ333**	
R205	**ERD25TJ334**	
R206	**ERD25TJ472**	

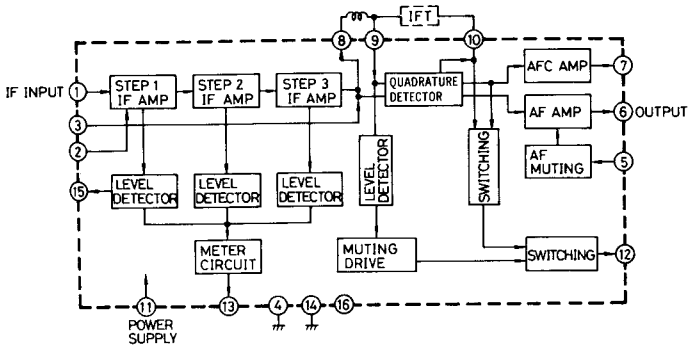
Ref. No.	Part No.	
R207	**ERD25TJ471**	
R208	**ERD25TJ181**	
R209	**ERD25TJ333**	
R210	**ERD25TJ332**	
R301	**ERD25TJ270**	
R302	**ERD25TJ122**	
R303	**ERD25TJ123**	
R304	**ERD25TJ102**	
R306	**ERD25TJ101**	
R401, 402	ERO25CKG6802	
R403, 404	**ERD25TJ561**	
R405, 406	ERO25CKG1803	
R407, 408	ERO25CKG2703	
R409, 410	**ERD25TJ273**	
R411, 412	**ERD25TJ153**	
R413, 414	**ERD25TJ184**	
R415, 416	**ERD25TJ104**	
R501, 502	**ERD25TJ472**	
R503, 504	**ERD25TJ152**	
R505, 506	**ERD25TJ682**	
R507, 508	**ERD25TJ124**	
R509, 510	**ERD25TJ123**	
R511, 512	**ERD25TJ332**	
R601, 602	**ERD25TJ222**	
R605, 606	**ERD25TJ823**	
R607, 608	**ERD25TJ822**	
R609, 610	**ERD25TJ332**	
R611, 612	**ERD25TJ151**	
R613, 614	**ERD25TJ471**	
R615, 616	**ERD25TJ473**	
R617, 618	**ERD25TJ563**	
R619, 620	**ERD14FJ100**	S
R621, 622	**ERG1ANJ102**	
R623, 624	ERD12FJ472	S
R625	**ERD14FJ121**	S
R627, 628	**ERX2ANJR33**	
R629, 630	**ERX2ANJR33**	
R631, 632	**ERD14FJ5R6**	S

Ref. No.	Part No.	
R633, 634	**ERX1ANJ100**	
R635, 636	**ERD14FJ822**	S
R637, 638	**ERD14FJ391**	S
R639	**ERD25TJ122**	
R641, 642	**ERG1ANJ331**	
R643	**ERD14FJ101**	S
R703	ERD18FAJ2R2	S
R704	**ERD25TJ223**	
R706	**ERD14FJ681**	S
R708	ERF5SJ181	S
R751	**ERD25TJ153**	
R752	ERD12FJ271	S
R753	ERD12FJ220	S
R801, 802	**ERD25TJ222**	
R803, 804	**ERD25TJ333**	
R805, 806	**ERD25TJ823**	
R807, 808	**ERD25TJ824**	
R1001, 1002	**ERD25TJ394**	
R1003, 1004	**ERD25TJ104**	
R1005 ~1008	**ERD25TJ472**	

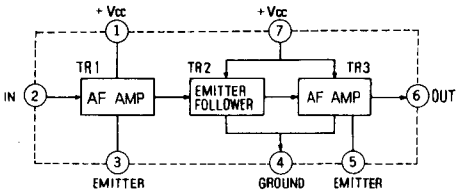
Ref. No.	Part No.	
CAPACITORS		
C1, 2	ECCD1H150KC	
C3	ECCD1H120KC	
C4	ECCD1H220KC	
C5	ECCD1H180KR	
C6	ECCD1H030CC	
C7	ECKD1H102MDA	
C8	ECCD1H050CC	
C9	ECCD1H181K	
C10	ECKD1H103ZF	
C11	ECCD1H0R5CC	
C12	ECCD1H020CC	
C13	ECCD1H070DC	
C14	ECCD1H390KC	
C15	ECCD1H100KC	
C16	ECKD1H102MDA	
C17	ECCD1H180KR	
C18	**ECEA2AS3R3**	
C19	ECKD1H223ZF	
C51,52(XAL)only	ECKDHS101MB	S
C101, 102	ECKD1H223ZF	
C103	**ECEA1CS220**	
C104	**ECEA2AS3R3**	
C105	ECCD1H680K	
C106	**ECEA2AS010**	
C107	ECCD1H020CC	
C108, 109	ECKD1H223ZF	
C110	**ECEA1CS330**	
C111	ECKD1H223ZF	
C112	ECKD1H103ZF	
C113	ECKD1H223ZF	
C201	ECKD1H103MD	
C202	**ECEA1CS330**	

Ref. No.	Part No.	
C203	**ECEA1JS4R7**	
C204, 205	ECQM1H223KZ	
C206	**ECEA2ASR47**	
C207, 208	ECKD1H103ZF	
C210	**ECEA1AS221**	
C251 (XAL)only	ECKDHS102MD	S
C301	ECQM1H473KZ	
C302	**ECEA1ES470**	
C303	ECQS05471JZ	
C304	**ECEA50ZR22**	
C305	**ECEA50ZR47**	
C306	**ECEA50M2R2R**	
C307, 308	ECQM1H333JZ	
C309, 310	ECQM1H332KZ	
C311, 312	ECKD1H331KB	
C313, 314	**ECEA50ZR22**	
C315	**ECEA1HS470**	
C316	**ECEA2AS3R3**	
C317	ECQM1H272KZ	
C401, 402	**ECEA50M3R3R**	
C403, 404	**ECEA1AS101**	
C405, 406	ECKD1H331KB	
C407, 408	ECQM1H472JZ	
C409, 410	ECQM1H183JZ	
C411, 412	**ECEA50MR47R**	
C413	**ECEA1JS471**	
C501, 502	ECQM1H222KZ	
C503, 504	ECQM1H103KZ	
C505, 506	ECQM1H223KZ	
C507, 508	ECQM1H823KZ	
C601, 602	**ECEA50M1R**	
C603, 604	ECCD1H820K	
C605, 606	ECCD1H101K	
C607, 608	ECKD1H331KB	
C609, 610	ECCD1H010C	
C611, 612	**ECEA1JS330**	
C613, 614	**ECEA1AS470**	
C615, 616	**ECEA1VS101**	
C617, 618	ECCD2H101K	
C619, 620	ECCD2H101K	
C621, 622	ECQM1H473KZ	
C623, 624	ECCD2H330K	
C625	**ECEA2AS010**	
C626, 627	**ECEA1HS331**	
C628	**ECEA1AS470**	
C629, 630	ECCD1H120K	
C631, 632	ECKD1H103ZF	
C701, 702	ECET45R6800Y	
C703, 704	ECKD1H103ZF	
C707	**ECEA1HS471**	
C710	**ECEA1HS221**	
C711	**ECEA1VS221**	
C751	ECKD1H103ZF	
C752	**ECEA1ES470**	
C801, 802	ECQM1H473KZ	
C803, 804	ECQM1H822KZ	
C805, 806	ECKD1H331KB	

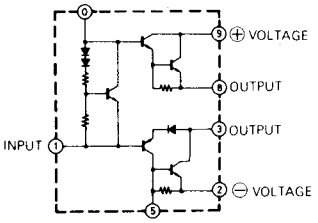
■ BLOCK DIAGRAM OF INTEGRATED CIRCUITS



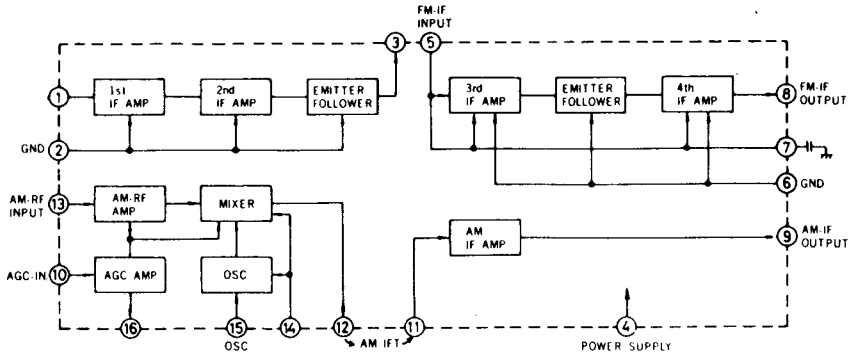
IC101 (AN377)
FM IF Amplifier & Detector



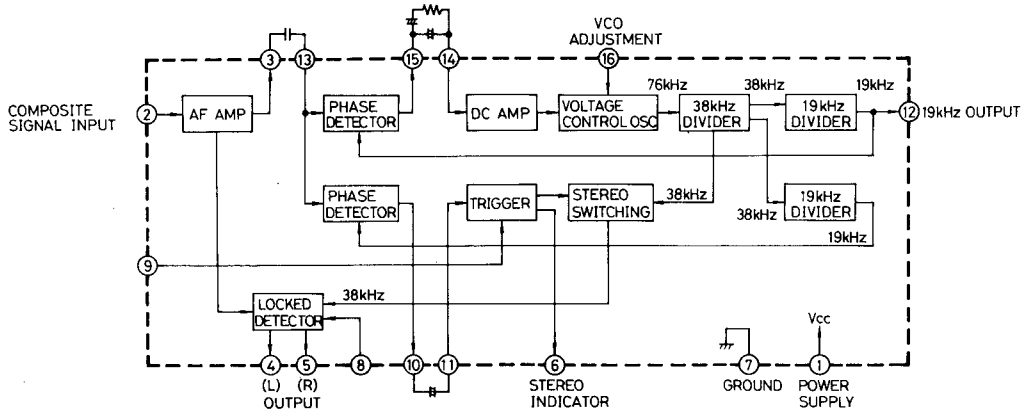
IC401, 402 (SVITA7129P)
Equalizer Amplifier



IC601, 602 (SVISTK0039U)
Power Amplifier



IC201 (AN217)
FM IF Amplifier & AM Converter



IC301 (AN363)
FM Multiplex

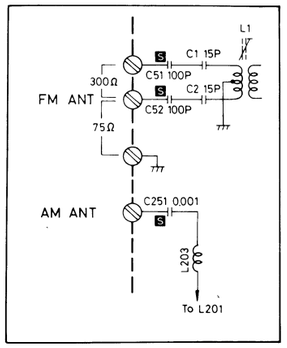
Schematic Diagram··Model SA-300 (X,XA)

Notes:

1. **S1-1~S1-6:** Selector switch in **"AM"** position.
   ①AM ⟷ ②FM ⟷ ③PHONO ⟷ ④AUX
2. **S2-1, S2-4:** Tape monitor 2 switch in **"SOURCE"** position.
3. **S3-1~S3-4:** Tape monitor 1 switch in **"SOURCE"** position.
4. **S4:** FM muting/mode switch in **"ON/AUTO"** position.
5. **S5-1, S5-2:** Loudness switch in **"OFF"** position.
6. **S6-1, S6-2:** High-filter switch in **"OFF"** position.
7. **S7-1, S7-2:** Remote speaker switch in **"OFF"** position.
8. **S8-1, S8-2:** Main speaker switch in **"ON"** position.
9. **S9:** Power source switch in **"ON"** position.
10. **S10:** Voltage adjustment switch in **"240V"** position.
    120V ⟷ 110V ⟷ 220V ⟷ 240V
11. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
    Not apply signal to set and muting switch to OFF condition.
    AM signal reception.
    FM muting to ON condition.
    FM stereo signal reception.
12. AF signal lines. FM signal lines. AM signal lines.
13. **S** indicates that only parts specified by the manufacturer be used for safety.
14. This schematic diagram may be modified at any time with the development of new technology.

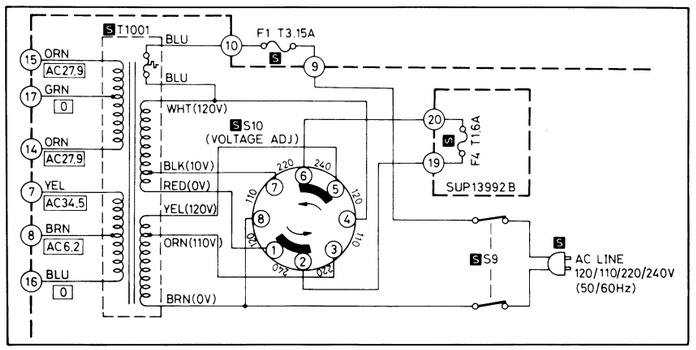
■ ANTENNA CAPACITORS

● **Product for Australia(XAL) only**

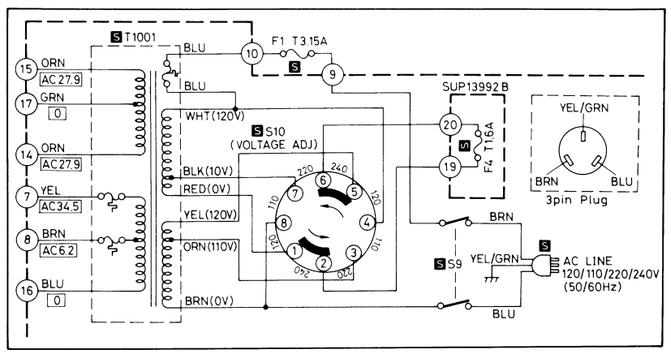


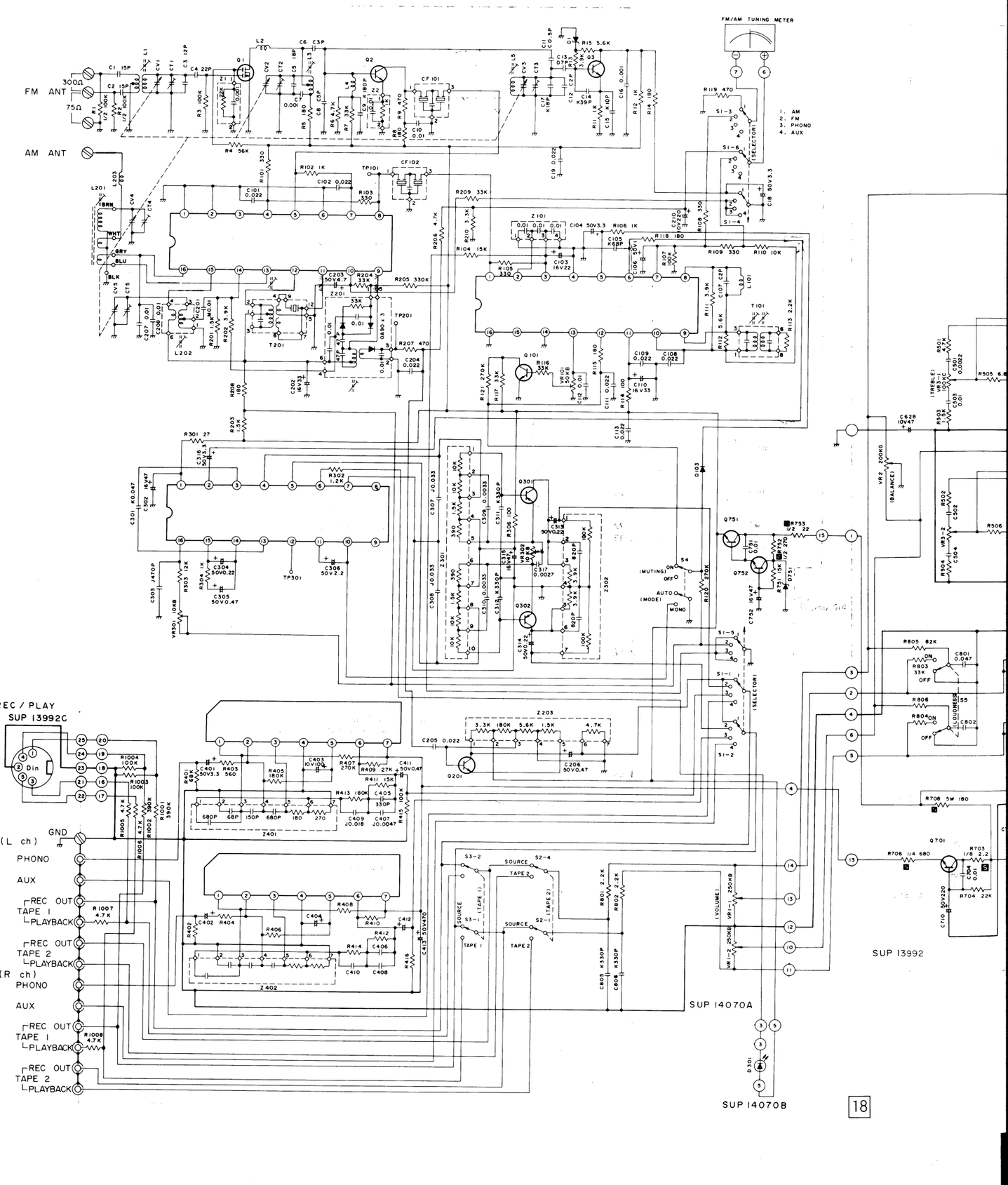
■ POWER SOURCE CIRCUITRY OF OTHER PRODUCTS

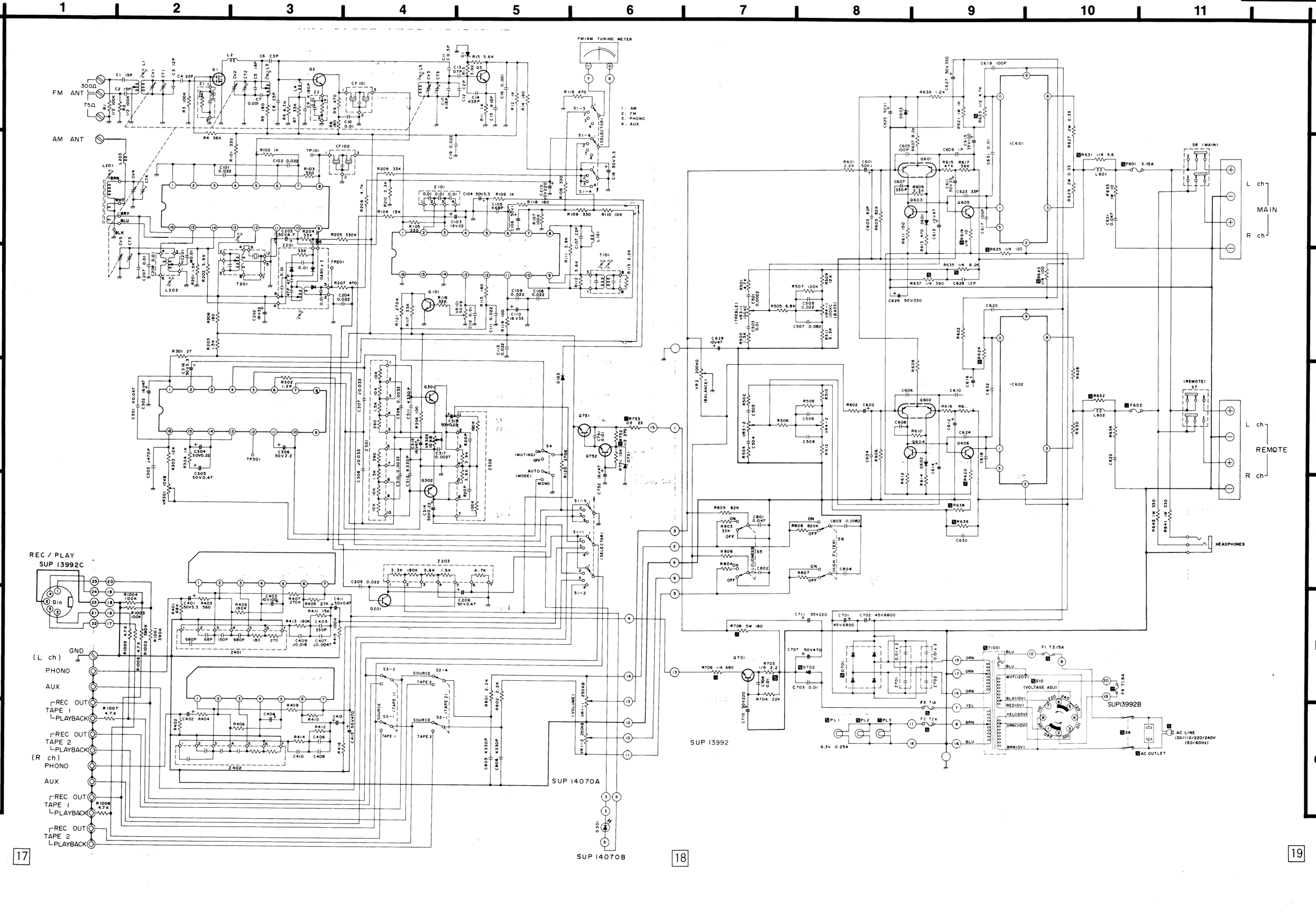
● **Products for Scandinavia/European(E) and Holland(XGH) only**



● **Product for Australia(XAL) only**

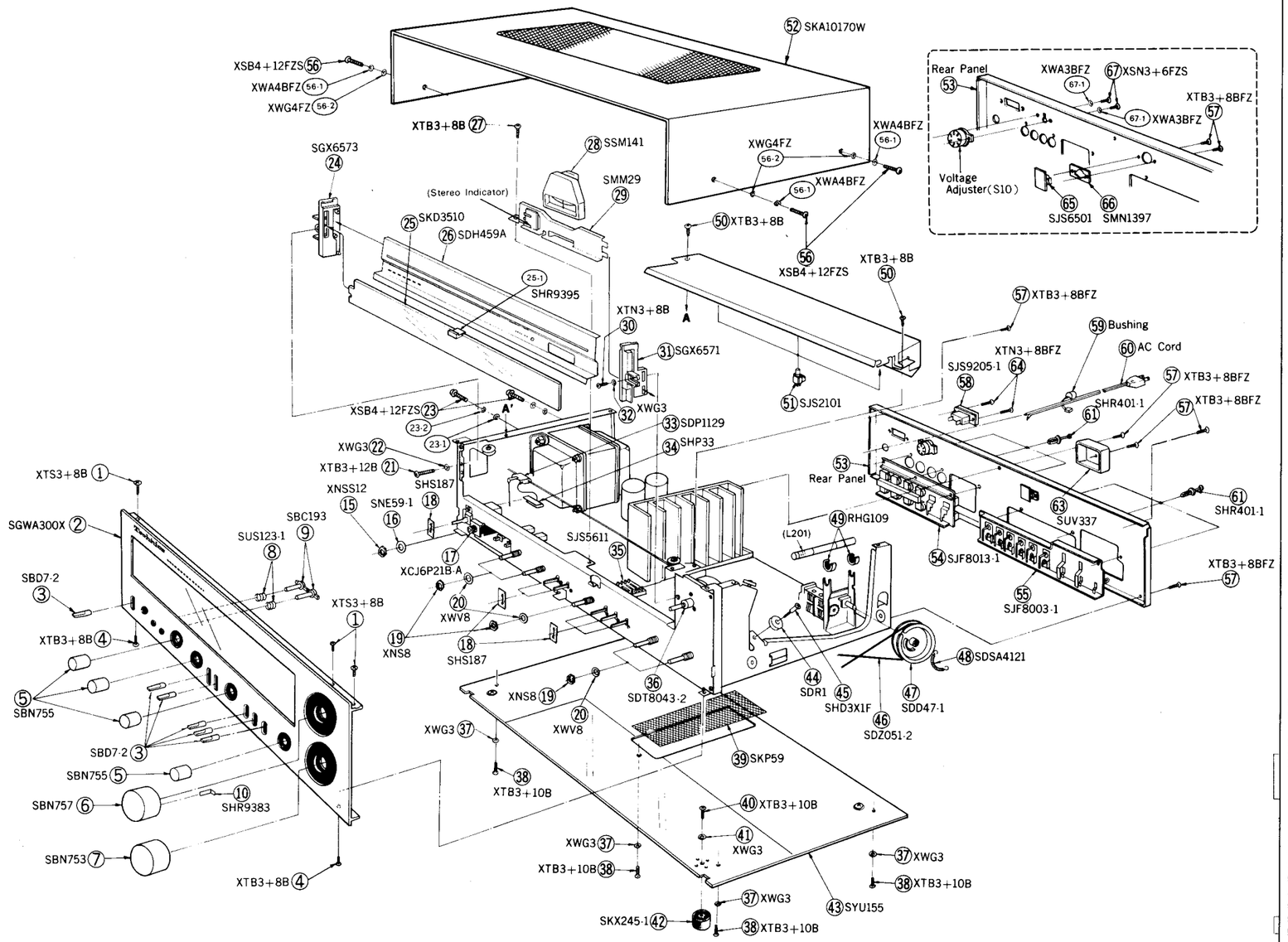





FM ANT
AM ANT
FM/AM TUNING METER
1. AM
2. FM
3. PHONO
4. AUX
(SELECTOR)
SUP 13992C
REC / PLAY
GND
(L ch)
PHONO
AUX
REC OUT
TAPE 1
PLAYBACK
REC OUT
TAPE 2
PLAYBACK
(R ch)
PHONO
AUX
REC OUT
TAPE 1
PLAYBACK
REC OUT
TAPE 2
PLAYBACK
SUP 14070A
SUP 14070B
SUP 13992
SUP13992B
SB (MAIN)
L ch
MAIN
R ch
(REMOTE)
L ch
REMOTE
R ch
HEADPHONES
AC LINE
120/110/220/240V
(50/60Hz)
AC OUTLET
(MUTING)
AUTO
(MODE)
MONO
(VOLUME)
(TREBLE)
(BASS)
(BALANCE)
(LOUDNESS)
(HIGH FILTER)
(VOLTAGE ADJ)
6.3V 0.25A

17 18 19

■ EXPLODED VIEW



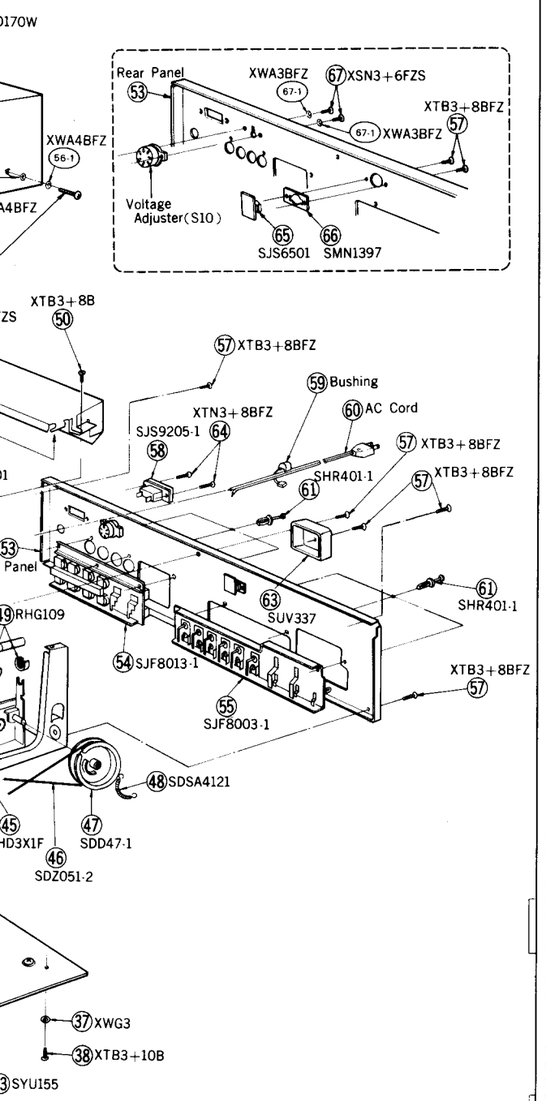
■ REPLACEMENT PARTS LIST

NOTES: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. ■ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
			CABINET and CHASSIS PARTS		
1	XTS3+8B		Screw, Front Panel M'tg	3	
2	SGWA300X		Panel, Front Ass'y	1	○
3	SBD7-2		Knob, Lever Switches	6	
4	XTB3+8B		Screw, Front Panel M'tg	2	○
5	SBN755		Knob, Bass, Treble, Balance & Selector	4	○
6	SBN757		Knob, Tuning	1	○
7	SBN753		Knob, Volume	1	○
8	SUS123-1		Spring, Speaker Push Switches	2	
9	SBC193		Button, Speaker Switches	2	○
10	SHR9383		Spacer, Tuning Knob	1	○
15	XNSS12		Nut, Headphones Jack M'tg	1	
16	SNE59-1		Washer, Headphones Jack	1	
17	XCJ6P21B-A		Jack, Headphones	1	
18	SHS187		Shading Cloth, Lever Switches	6	
19	XNS8		Nut, Volumes & Selector M'tg	5	
20	XWV8		Washer, Volumes & Selector	5	
21	XTN3+12B		Screw, Dial Scale Left Bracket M'tg	1	
22	XWG3		Washer, Left Bracket Screw	1	
23	XSB4+12FZS		Screw, Power Transformer M'tg	4	
23-1	XWG4FZ		Washer	4	
23-2	XWA4BFZ		Washer, Spring	4	
24	SGX6573		Bracket, Dial Scale Left Side	1	○
25	SKD3510		Scale, Dial	1	*○
25-1	SHR9395		Bracket, Dial Scale	1	○
26	SDH459A		Plate, Dial	1	*○
27	XTB3+8B		Screw, Meter Bracket M'tg	1	
28	SSM141		Meter, AM Signal & FM Tuning	1	○
29	SMM29		Bracket, Meter	1	*○
30	XTN3+8B		Screw, Dial Scale Right Bracket M'tg	1	
31	SGX6571		Bracket, Dial Scale Right Side	1	○
32	XWG3		Washer, Right Bracket Screw	1	
33	SDP1129		Pointer, Dial	1	*○
34	SHP33		Sheet, Pointer Slider	1	
35	SJS5611		Connector, 6pin	1	
36	SDT8043-2		Shaft, Tuning	1	*○
37	XWG3		Washer, Bottom Board Screw	7	
38	XTB3+10B		Screw, Bottom Board M'tg	7	
39	SKP59		Ventilation Plate	1	○
40	XTB3+10B		Screw, Feet M'tg	4	
41	XWG3		Washer, Feet Screw	4	
42	SKX245-1		Foot, Set	4	
43	SYU155		Bottom Board	1	*○
44	SDR1		Pulley, Dial Cord	4	
45	SHD3X1F		Screw, Pulley M'tg	4	*
46	SDZ051-2		Cord, Dial 200cm (78-3/4")	1roll	
47	SDD47-1		Drum, Variable Capacitor	1	
48	SDSA4121		Spring, Dial Cord	1	
49	RHG109		Rubber Cushion, AM Bar Antenna	2	
50	XTB3+8B		Screw, Reflection Cover M'tg	2	
51	SJS2101		Holder, Dial Lamp	3	○
52	SKA10170W		Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1B		Rear Panel	1	○
53(XAL)	SGPA300L		Rear Panel, SGP1350-2B with Name Plate (SGT16690)	1	○
53(E,XGH)	SGPA300D		Rear Panel, SGP1350B with Name Plate (SGT16570)	1	○
54	SJF8013-1		Terminal, Speakers	1	
55	SJF8003-1		Terminal, Input & Antenna	1	
56	XSB4+12FZS		Screw, Cabinet M'tg	4	
56-1	XWA4BFZ		Washer, Spring	4	
56-2	XWG4FZ		Washer	4	
57	XTB3+8BFZ		Screw, Rear Panel & Fuse Cover M'tg	10	
58(XA,X)only	SJS9205-1	S	Socket, AC Outlet	1	
59(XAL)only	SHR131		Bushing, AC Cord	1	
59	SHR127		Bushing, AC Cord	1	
60(XAL)only	QFC1207M	S	AC Cord, Power Source	1	
60	SJA97	S	AC Cord, Power Source	1	
61	SHR401-1		Latch, Speakers & Input Terminal M'tg	6	
63	SUV337		Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ		Screw, AC Outlet M'tg	1	
65	SJS6501		Socket, DIN (TAPE DECK, REC/PLAY)	2	
66	SMN1397		Bracket, DIN Socket	1	*
67	XSN3+6FZS		Screw, Voltage Adjuster M'tg	1	
67-1	XWA3BFZ		Washer, Spring	2	

■ ACCESS

■ PACKING



■ REPLACEMENT PARTS LIST

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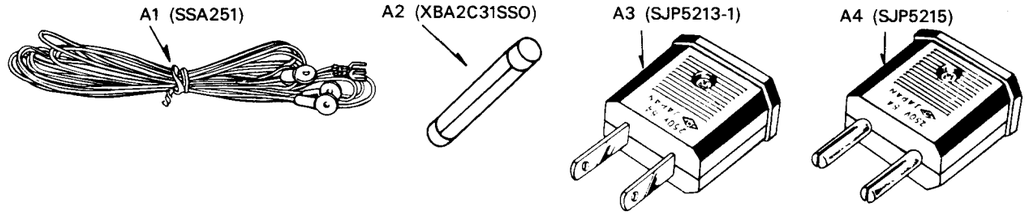
2. ■ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
			CABINET and CHASSIS PARTS		
1	XTS3+8B		Screw, Front Panel M'tg	3	
2	SGWA300X		Panel, Front Ass'y	1	○
3	SBD7-2		Knob, Lever Switches	6	
4	XTB3+8B		Screw, Front Panel M'tg	2	○
5	SBN755		Knob, Bass, Treble, Balance & Selector	4	○
6	SBN757		Knob, Tuning	1	○
7	SBN753		Knob, Volume	1	○
8	SUS123-1		Spring, Speaker Push Switches	2	
9	SBC193		Button, Speaker Switches	2	○
10	SHR9383		Spacer, Tuning Knob	1	○
15	XNSS12		Nut, Headphones Jack M'tg	1	
16	SNE59-1		Washer, Headphones Jack	1	
17	XCJ6P21B-A		Jack, Headphones	1	
18	SHS187		Shading Cloth, Lever Switches	6	
19	XNS8		Nut, Volumes & Selector M'tg	5	
20	XWV8		Washer, Volumes & Selector	5	
21	XTN3+12B		Screw, Dial Scale Left Bracket M'tg	1	
22	XWG3		Washer, Left Bracket Screw	1	
23	XSB4+12FZS		Screw, Power Transformer M'tg	4	
23-1	XWG4FZ		Washer	4	
23-2	XWA4BFZ		Washer, Spring	4	
24	SGX6573		Bracket, Dial Scale Left Side	1	○
25	SKD3510		Scale, Dial	1	*○
25-1	SHR9395		Bracket, Dial Scale	1	○
26	SDH459A		Plate, Dial	1	*○
27	XTB3+8B		Screw, Meter Bracket M'tg	1	
28	SSM141		Meter, AM Signal & FM Tuning	1	○
29	SMM29		Bracket, Meter	1	*○
30	XTN3+8B		Screw, Dial Scale Right Bracket M'tg	1	
31	SGX6571		Bracket, Dial Scale Right Side	1	○
32	XWG3		Washer, Right Bracket Screw	1	
33	SDP1129		Pointer, Dial	1	*○
34	SHP33		Sheet, Pointer Slider	1	
35	SJS5611		Connector, 6pin	1	
36	SDT8043-2		Shaft, Tuning	1	*○
37	XWG3		Washer, Bottom Board Screw	7	
38	XTB3+10B		Screw, Bottom Board M'tg	7	
39	SKP59		Ventilation Plate	1	○
40	XTB3+10B		Screw, Feet M'tg	4	
41	XWG3		Washer, Feet Screw	4	
42	SKX245-1		Foot, Set	4	
43	SYU155		Bottom Board	1	*○
44	SDR1		Pulley, Dial Cord	4	
45	SHD3X1F		Screw, Pulley M'tg	4	*
46	SDZ051-2		Cord, Dial 200cm (78-3/4")	1roll	
47	SDD47-1		Drum, Variable Capacitor	1	
48	SDSA4121		Spring, Dial Cord	1	
49	RHG109		Rubber Cushion, AM Bar Antenna	2	
50	XTB3+8B		Screw, Reflection Cover M'tg	2	
51	SJS2101		Holder, Dial Lamp	3	○
52	SKA10170W		Cabinet, Black Wooden	1	○
53(XA,X)	SGP1350-1B		Rear Panel	1	○
53(XAL)	SGPA300L		Rear Panel, SGP1350-2B with Name Plate (SGT16690)	1	○
53(E,XGH)	SGPA300D		Rear Panel, SGP1350B with Name Plate (SGT16570)	1	○
54	SJF8013-1		Terminal, Speakers	1	
55	SJF8003-1		Terminal, Input & Antenna	1	
56	XSB4+12FZS		Screw, Cabinet M'tg	4	
56-1	XWA4BFZ		Washer, Spring	4	
56-2	XWG4FZ		Washer	4	
57	XTB3+8BFZ		Screw, Rear Panel & Fuse Cover M'tg	10	
58(XA,X)only	SJS9205-1	S	Socket, AC Outlet	1	
59(XAL)only	SHR131		Bushing, AC Cord	1	
59	SHR127		Bushing, AC Cord	1	
60(XAL)only	QFC1207M	S	AC Cord, Power Source	1	
60	SJA97	S	AC Cord, Power Source	1	
61	SHR401-1		Latch, Speakers & Input Terminal M'tg	6	
63	SUV337		Cover, Speaker Fuses	1	*
64(XA,X)only	XTN3+8BFZ		Screw, AC Outlet M'tg	1	
65	SJS6501		Socket, DIN (TAPE DECK, REC/PLAY)	2	
66	SMN1397		Bracket, DIN Socket	1	*
67	XSN3+6FZS		Screw, Voltage Adjuster M'tg	1	
67-1	XWA3BFZ		Washer, Spring	2	

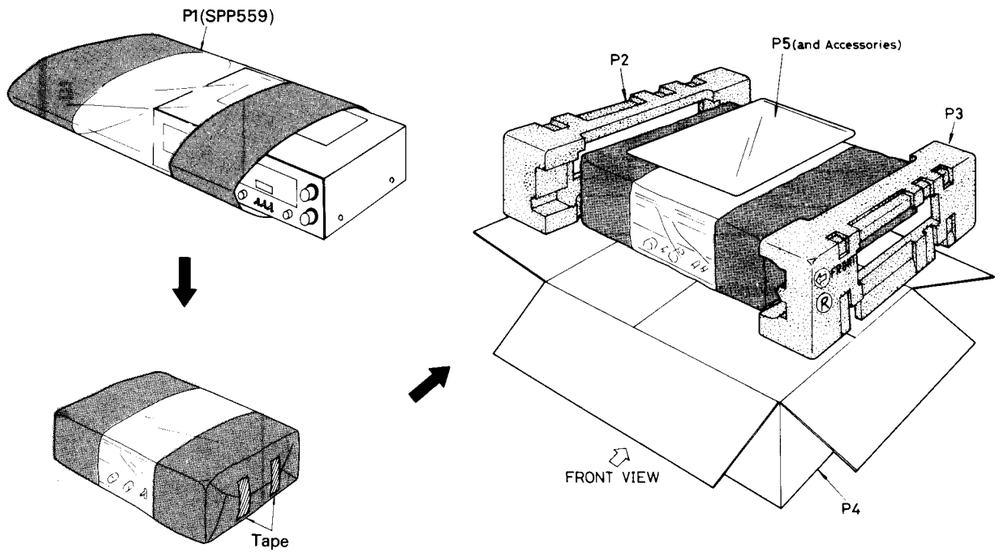
Ref. No.	Part No.		Part Name & Description	Per Set	Remarks
			ACCESSORIES		
A1	SSA251		Cord, FM Feeder	1	
A2	XBA2C31SSO	S	Fuse, 3.15A(250V) Speaker Circuit	2	
A3 (XA,X)only	SJP5213-1	S	Plug Adapter, AC Power	1	
A4 (XA,X)only	SJP5215	S	Plug Adapter, AC Power	1	
			PACKING PARTS		
P1	SPP559		Polyethylene Bag	1	○
P2	SPS1591		Pad, Left Side	1	
P3	SPS1593		Pad, Right Side	1	
P4 (E)only	SPG1483		Carton Box	1	○
P4	SPG1485		Carton Box	1	○
P5(E,XGH)only	SQF1895		Instructions Book, Printed Matter	1	○
P5	SQF1897		Instructions Book, Printed Matter	1	○

Notes: * (X) and (XA) are available in Asia, Latin America, Middle East and Africa only.
* (XAL) is available in Australia only.
* (XGH) is available in Holland only.
* (E) is available in Scandinavia and European only.

■ ACCESSORIES



■ PACKINGS



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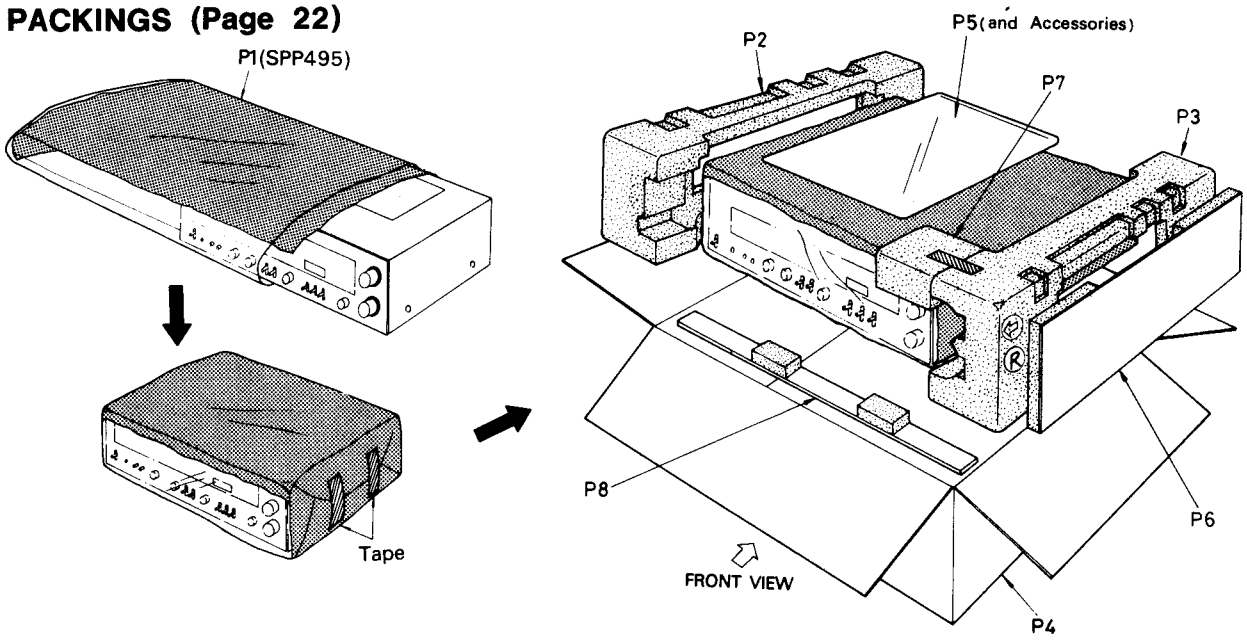
Modification-3

■ PACKING PARTS LIST (Page 22)

Ref. No.	Part No.		Part Name & Description	Per Set		Remarks
			PACKING PARTS			
P1	SPP495		Polyethylene Bag	1		
P2	SPS1591		Pad, Left Side	1		
P3	SPS1593		Pad, Right Side	1		
P4(E)only	SPG1483		Carton Box	1		○
P4	SPG1485		Carton Box	1		○
P5(E,XGH)only	SQF1895-1		Instructions Book, Printed Matter	1		○
P5	SQF1897-1		Instructions Book, Printed Matter	1		○
P6	SPS1657		Pad, Right Side	1		
P7	SPS1653		Pad, Right Front Side } Addition	1		
P8	SPS1651		Pad, Bottom Side	1		

Modification-4

■ PACKINGS (Page 22)



Modification-5

■ OTHERS

- Correction of dimensions (General of technical Specifications)
  430(W)×145(H)×260(D) mm
  (16 15/16"×5 23/32"×10 1/4") } Correction → { 430(W)×142(H)×300(D) mm
  (16 15/16"×5 19/32"×11 13/16")

- Set for Scandinavia and European indicates **(D)** insted of **(E),** this changes is from May, 1978.
  The model SA-300 (E) is available in Scandinavia and European only. } change → { The model SA-300 (D) is available in Scandinavia and European only.

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For additional information, please refer to the service manual for Model No. SA-300 (X, XA, XAL, XGH, E).

Notes: * This information included only the changes of the **SA-300 (X, XA, XAL, XGH, E)** service manual (ORDER NO. SD7804-1333).
* When servicing model **SA-300,** this information and **SA-300 (X, XA, XAL, XGH, E)** (ORDER NO. SD7804-1333) service manual should be used together.

Modification-1

■ TO REMOVE CABINET (Page 8)

1. Remove the two cabinet mounting screws (nos ①, ② screws in fig. 7-1).
2. Remove the four cabinet mounting screws (nos ①～④ screws in fig. 7).
3. Sliding it toward Ⓐ direction and lifting it upward Ⓑ direction as shown in fig. 7.
4. When the cabinet is installed, insert the metal fitting of cabinet (as shown in fig. 8) into the space between the front panel and light reflector.

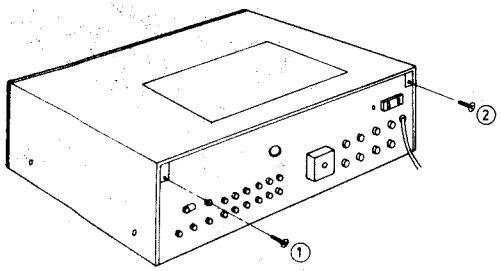

Fig. 7-1

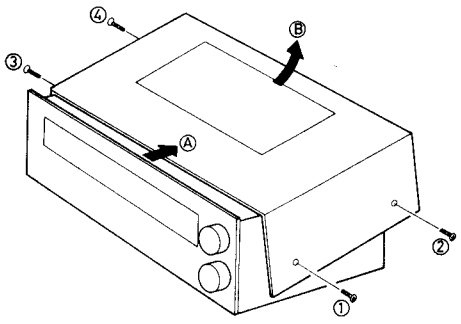

Fig. 7

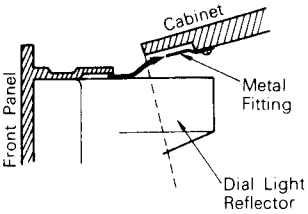

Fig. 8

Modification-2

■ REPLACEMENT PARTS LIST (Page 14, 15 & Page 21)

Ref. No.	Change of Part No. OLD ➡ NEW		Part Name & Description	Per Set		Remarks
			RESISTORS			
R627~R630	ERX2ANJR33	ERQ2CKR33	Fuse Type Metallic, 0.33Ω, 2W, ±10%	4		
			FUSES			
F601, 602 (XA,X)only	XBA2C31SSO	XBA2C31SSO	Fuse, 3.15A(250V) Speaker Circuit	2		
F601, 602 (other areas)	XBA2C31SSO	XBA2C25SSO	Fuse, 2.5A(250V) Speaker Circuit	2		
			REAR PANEL			
53 (XAL)	SGPA300L	SGPA300L1	Rear Panel, SGP1350-2F with Name Plate(SGT16690)	1		○
53 (E, XGH)	SGPA300D	SGPA300D1	Rear Panel, SGP1350F with Name Plate(SGT16570)	1		○
			ACCESSORIES			
A2 (XA,X)only	XBA2C31SSO	XBA2C31SSO	Fuse, 3.15A(250V) Speaker Circuit	2		
A2 (other areas)	XBA2C31SSO	XBA2C25SSO	Fuse, 2.5A(250V) Speaker Circuit	2		